36 37

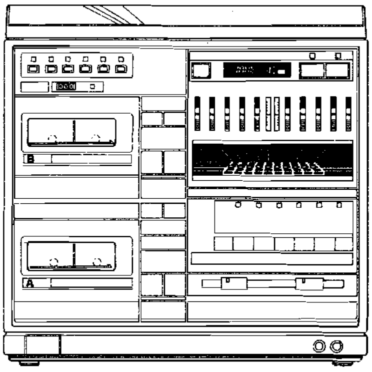
TAPC F1675

30/32/35

Service
Service
Service

For service information regarding:

- **the cassette mechanism, refer to Service Manual: Recorder Tape Deck RU-19 and Recorder tape Deck RU-20.**
- **The record player refer to Service Manual: Record player Q510 (AR).**


42 171 A12

Service Manual

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CLASS 1
LASER PRODUCT
3122 110 03420

This apparatus is equipped with a microprocessor with a built-in testprogram.
See for this testprogram page 7, 8 and 9 of this manual.

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviçic

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PHILIPS

Published by Service
Consumer Electronics

CS 9 192

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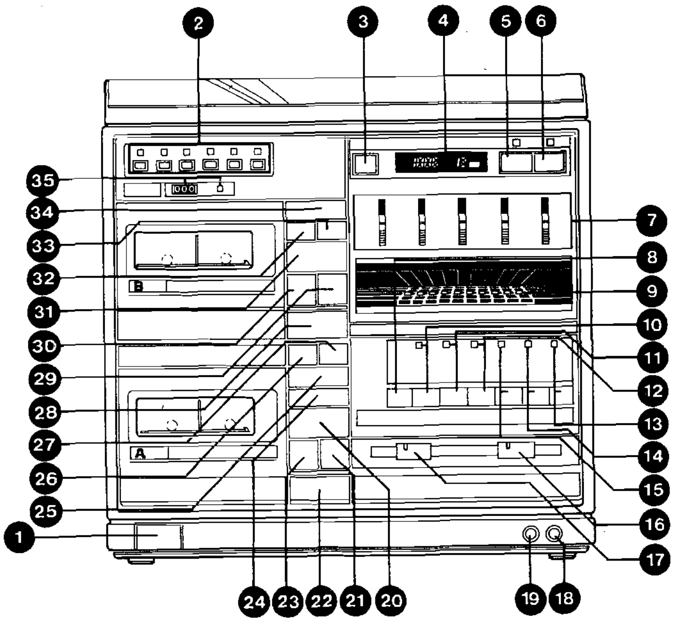
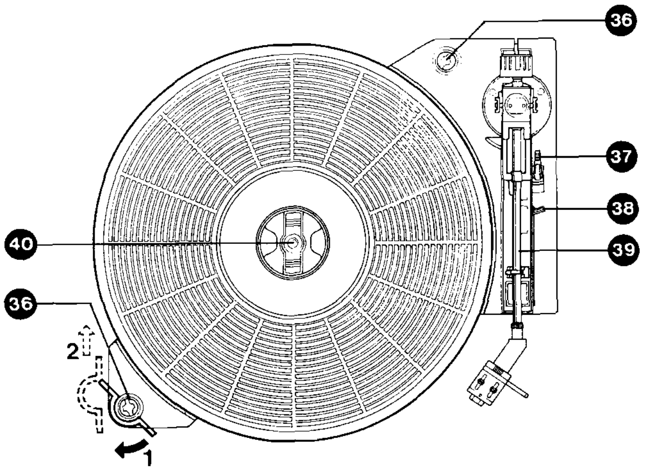
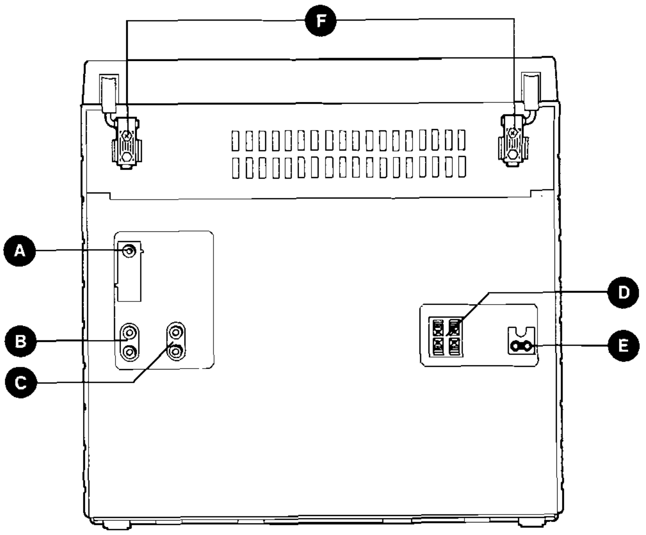
SPECIFICATION	**Nominal value**	**Typical value**
General		
Mains voltage	220 V ~ Service solution for 110-127-240 V~	220 V ~ Service solution for 110-127-240 V~
Mains frequency	50-60 Hz	50-60 Hz
Power consumption	120 W max	120 W max
Dimensions (W×H×D)	360×344×363 mm	360×344×363 mm
Tuner: FM section		
Tuning range	87.5 MHz to 108 MHz	87.5 MHz to 108 MHz
Aerial input	75 Ω coaxial	75 Ω coaxial
Sensitivity mono	≤ 1.3 µV 26 dB S/N } at 98 MHz, 75 Ω	1 µV 26 dB S/N
stereo	≤ 25 µV 46 dB S/N } and 100% Mod.	20 µV 46 dB S/N
Selectivity	≥ 65 dB at 300 kHz off resonance	70 dB at 300 kHz off resonance
Distortion T.H.D. mono (DIN)	≤ 0.8%	≤ 0.4%
stereo (DIN)	≤ 1%	≤ 0.6%
Tuner: AM section		
Wave ranges MW	522 kHz to 1611 kHz (575- 186m)	522 kHz to 1611 kHz
LW	150 kHz to 263 kHz (2000-1141m)	150 kHz to 263 kHz
Sensitivity 30% mod MW	≤2200 µV 26 dB S/N	1500 µV 26 dB S/N
30% mod LW	≤3500 µV (LW not in all versions)	≤3000 µV (LW not in all versions)
Selectivity	≥ 30 dB at 9 kHz off resonance	32 dB at 9 kHz off resonance
Aerial input	75 Ω coaxial	75 Ω coaxcial
Built-in aerial	Ferroceptor for MW and LW (LW not in all versions)	Ferroceptor for MW and LW (LW not in all versions)
Tuner: Digital section		
Tuning steps FM/MW/LW	50 kHz/9 kHz/1 kHz	50 kHz/9 kHz/1 kHz
Presets FM/MW/LW	6/6/6 sequential	6/6/6 sequential
Memory	volatile, supercap backup for 1 week.	volatile, supercap backup for 1 week.
Amplifier		
Output power	2×40 W in 4 Ω (music power) 2×18 W in 4 Ω (DIN) D ≤ 10%	2×40 W in 4 Ω (music power) 2×18 W in 4 Ω (DIN) D ≤ 10%
Distortion T.H.D.	≤0,3% at 1 kHz (FTC)	≤0,15 at 1 kHz (FTC
Frequency characteristic	≤0,3% at 1 kHz (FTC)	≤0,15% at 1 kHz (FTC)
Equalizer		
min		
max	63Hz 250Hz 1kHz 4kHz 16kHz	
	−6.5dB −7.5dB −8dB −8dB −11dB +7dB +7dB +7dB +6.5dB +8dB	−7dB +7dB at 63Hz 250Hz 1kHz 4kHz 16kHz
Signal/noise ratio weighted (A-curve)		
AUX/input	for 18 W output ≥71 dB (IEC)	for 18 W output 72 dB (IEC)
Input sensitivity		
Microphone	7 mV at 1.5 kΩ	7 mV at 1.5 kΩ
CD/TV	500 mV at 47 kΩ	500 mV at 47 kΩ
Aux	250 mV at 47 kΩ	250 mV at 47 kΩ
Outputs		
Loudspeakers	8,5 V at 4 Ω 15 W (DIN)	8,5 V at 4 Ω 15 W (DIN)
Headphones	350 mV at 8 Ω (8-800 Ω)	350 mV at 8 Ω (8-800 Ω)
Cassette recorder A+B		
Cassette system	compact cassette	compact cassette
Number of tracks	2x2 (stereo)	2x2 (stereo)
Tape speed	4.76 cm/sec	4.76 cm/sec
Speed deviation: Both play	± 1,5 %	± 1,5 %
Difference between A and B	+ 2 %, −0,5 %	+ 2 %, −0,5 %
Wow and flutter (weighted)	≤ 0.3 % and other side free or play	≤ 0.20 %
Fast-wind time (C60)	≤ 120 sec	≤ 120 sec
Bias and erase frequency	± 54 kHz	± 54 kHz
Frequency range		IEC:
Chromium	60-14.500 Hz	60-14.500 Hz
Normal	60-13.000 Hz	60-13.000 Hz
Noise reduction	−3 dB at 4 kHz	−3 dB at 4 kHz
Distortion (K3)	≤3 %	≤3 %
Record player		
Type of element	ceramic/saphir stylus	ceramic/saphir stylus
stylus force	5 gf +1,5 gf −1,0 gf	5 gf +1,5 gf −1,0 gf
Speeds	33 1/3-45 t/min	33 1/3-45 t/min
Speed deviation	+ 3 %, − 1 %	+ 3 %, − 1 %
Wow and flutter	≤ 3 ‰ (WRMS)	≤ 9 ‰ (WRMS)
Rumble weighted	≤40 dB (DIN B)	≤60 dB (DIN B)



41 991 A12



41 972 A12



41 971 A12

Fig. 3

Connections and indicators (Figs. 1, 2)

1. 'POWER' on/off switch
2. 'PRESETS SELECTOR BLOCK' preset buttons
3. Selection button for 'FM/MW/LW' waveband (LW not in all models)
4. Tuner display
5. '◁ TUNING' button
   For tuning to lower frequencies
6. 'TUNING ▷' button
   For tuning to higher frequencies
7. Tone regular '10 BAND GRAPHIC EQUALIZER' (separate for left and right channel)
8. 'MONO/RIF' switch
9. Indicator for output level
10. 'HIGH SPEED DUBBING' speed selector with indicator
11. 'TAPE' function selection button with indicator
12. 'CD' function selection button with indicator
13. 'AUX/TV' function selection button with indicator
14. 'TUNER' function selection button with indicator
15. 'PHONO' function selection button with indicator
16. 'VOLUME' control
17. 'BALANCE' control
18. 'MIC' terminal for a mono microphone
19. 'PHONES' terminal for stereo headphones
   For connecting stereo headphones (impedance 8-1000 Ω). When using headphones the loudspeakers are automatically switched off.
20. 'PLAY' button (deck A)
21. 'WIND' button (deck A)
22. 'STOP' button (deck A)
23. 'REW' button (deck A)
24. 'PAUSE' button (deck A)
25. 'EJECT' button (deck A)
26. 'NOISE REDUCTION' button
27. 'TAPE SELECTOR' function selection button
   For selecting the setting appropriate to the type of tape (NORMAL-IEC I/CrO^2-IEC II)
28. 'STOP' button (deck B)
29 'WIND' button (deck B)
30. 'REW' button (deck B)
31. 'PLAY' button (deck B)
32. 'REC' recording button (deck B)
33. 'PAUSE' button (deck B)
34. 'EJECT' button (deck B)
35. 'COUNTER' (deck B) with 'RESET' button
36. Transit protection screws
37. Lever
   To raise or lower the record player arm
38. '33-45' rpm selector
39. Record player arm
40. Adaptor disk for 45 rpm records

Connections (Fig. 3)

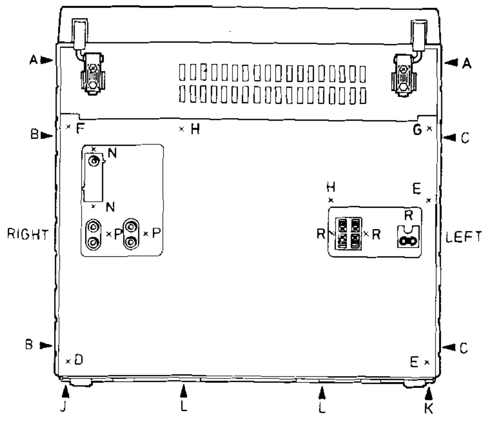
A. Terminal for FM antenna, 75 Ω
For connecting an FM antenna or for connecting to a central antenna system.
The auxiliary antenna supplied can also be connected to this terminal. Adjust the position of this antenna for optimum reception.
For good FM stereo reception use of an FM outdoor antenna is recommended.

B. 'AUX/TV' terminals
To these you can connect, for example, the sound channel of a TV set, a separate turner, receiver or recorder (only for playback!).

C. 'CD' terminals

D. 'LS' terminals

E. 'MAINS' terminals


A
A
B
B
C
C
F
H
G
N
N
P
P
H
E
R
R
R
RIGHT
LEFT
D
E
J
L
L
K
41 970 A12

DEMOUNTING (see Fig. 4) AND SERVICING HINTS

1. TOP COVER (including record player);
   Remove screws A–F–G.
2. LEFT SIDE;
   Remove screws C–E–G–K.
3. RIGHT SIDE;
   Remove screws B–D–F–J.
4. REAR SIDE;
   Remove screws D–E–F–G–H.
5. BOTTOM;
   Remove screws J–K–L–M.
6. TAPE DECK;
   point 1 + 2 + 5 + 9 + Figs. 7, 8, 9, + 3 screws 4Nx32 (be sure that belt 433 is mounted (see Fig. 9)
   Service position is shown in Fig. 10.
7. RECORD PLAYER;
   See Fig. 11
8. 'EJECT'-BUTTONS;
   See Fig. 6 (pay attention to spring 418)
9. CD-player;
   Remove bottom, now remove the three screws 4Nx13 2 screws at the front side, and one in the middle of the set.
10. Programming the presets
11. Programming the CD-player

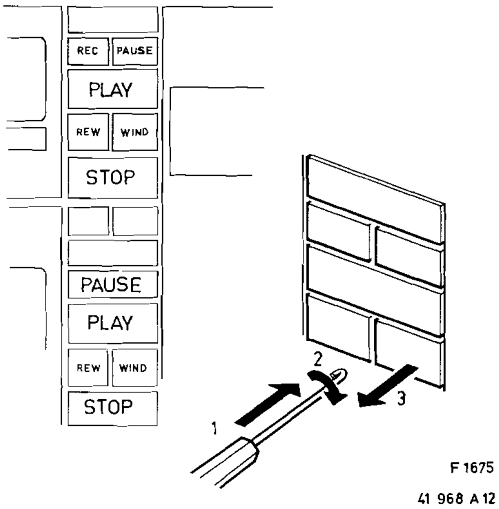

REC
PAUSE
PLAY
REW
WIND
STOP
PAUSE
PLAY
REW
WIND
STOP
1
2
3
F 1675
41 968 A12

Fig. 5

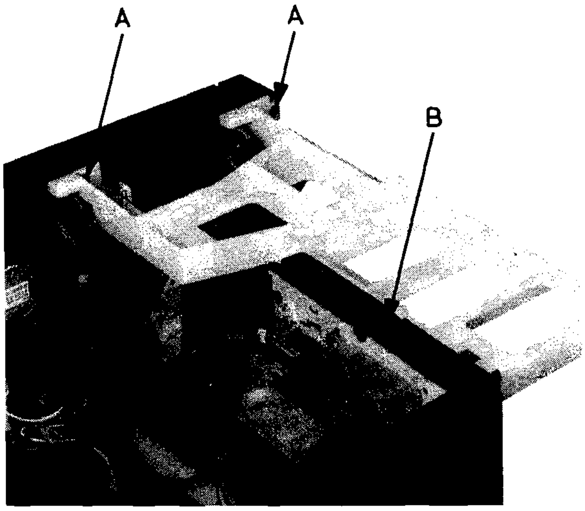


Fig. 7

41 996 A12

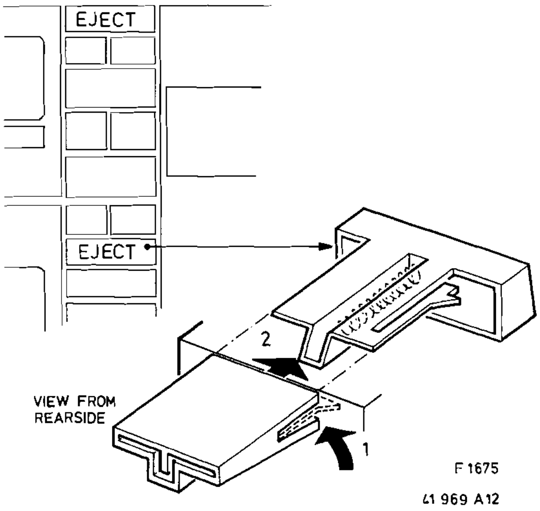

EJECT
EJECT
VIEW FROM REARSIDE
2
1
F 1675
41 969 A12

Fig. 6

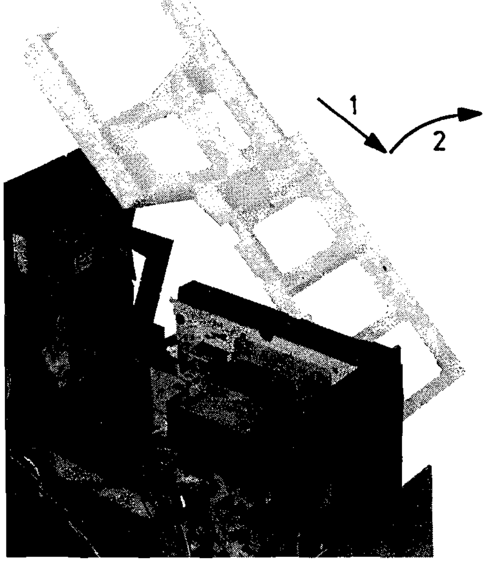


Fig. 8

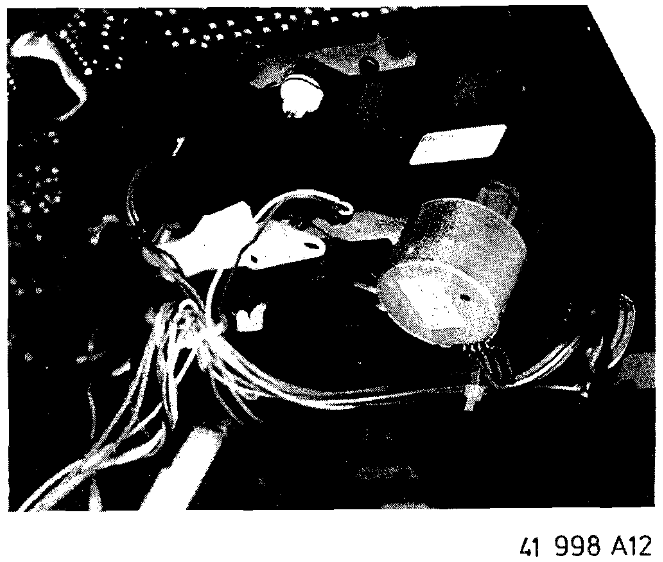


Fig. 9

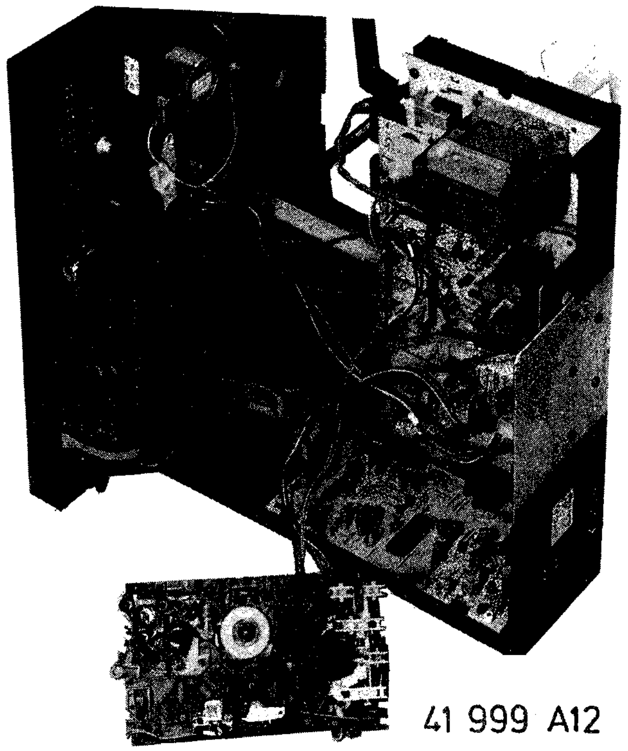


Fig. 10

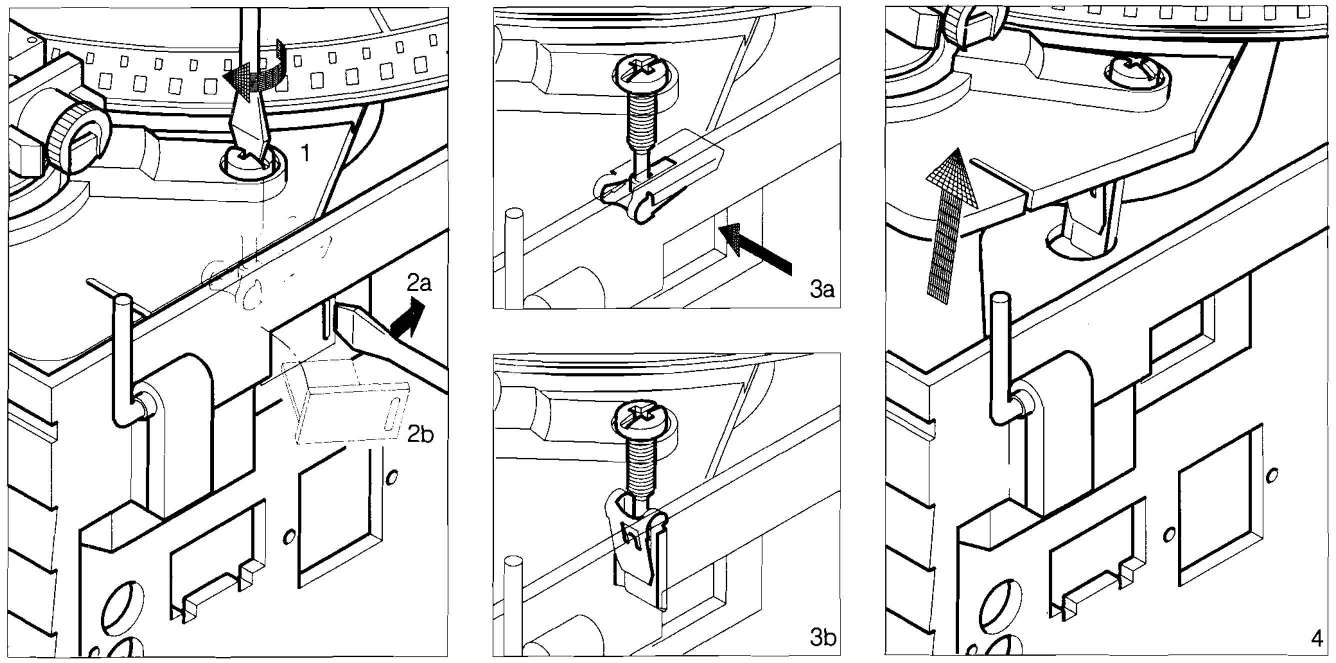

1
2a
2b
3a
3b
4

Fig. 11

MDA.00253
T28/605

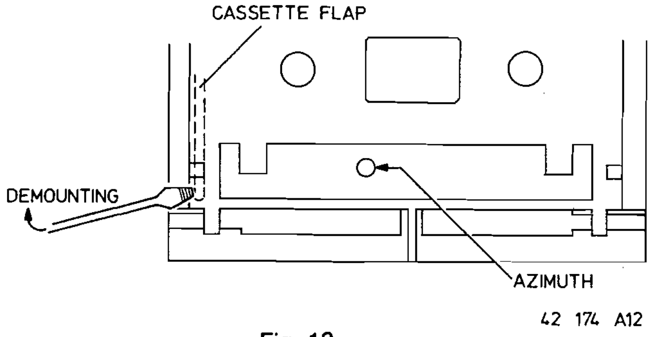

CASSETTE FLAP
DEMOUNTING
AZIMUTH
42 174 A12

Fig. 12

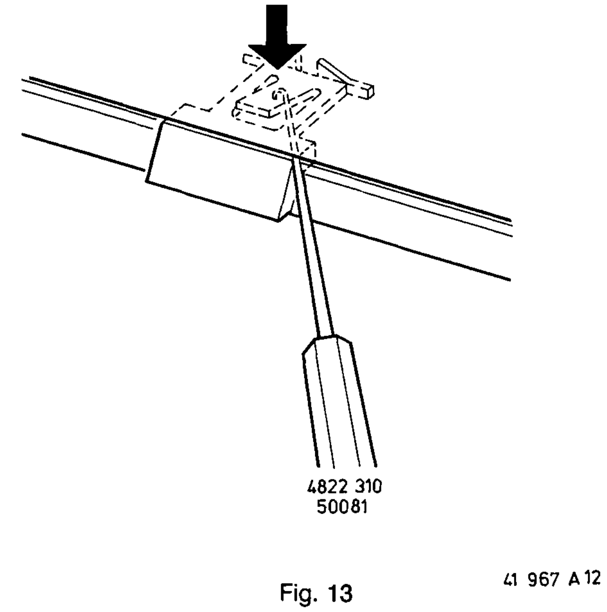

4822 310
50081
41 967 A12

Fig. 13

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

HANDLING CHIP COMPONENTS

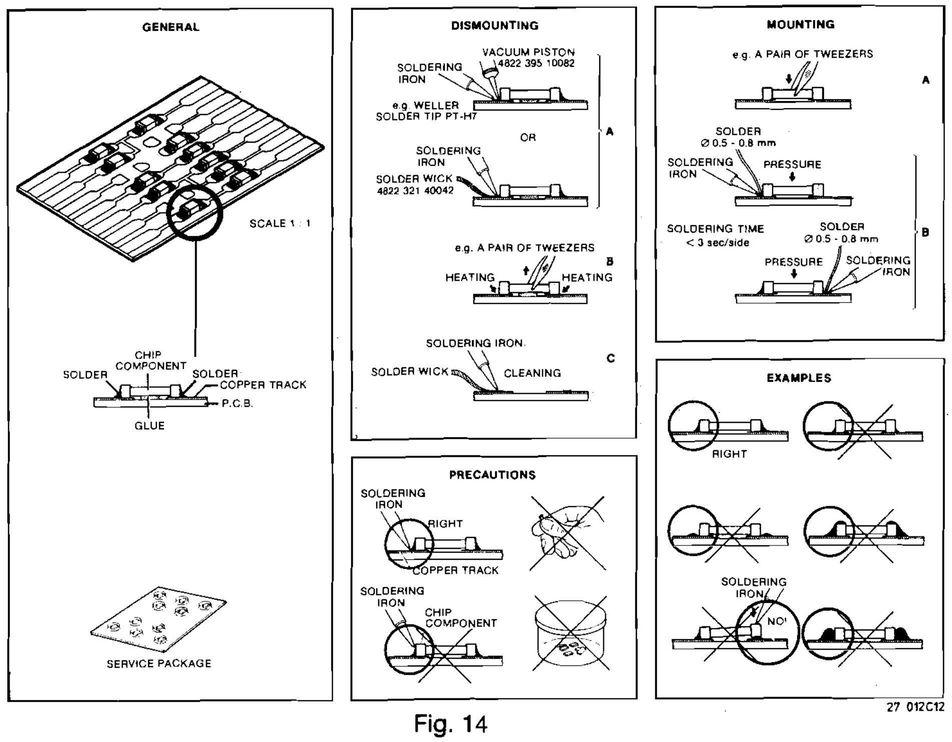

GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
SOLDER WICK
CLEANING
C
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER Ø 0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
B
EXAMPLES
RIGHT
SOLDERING IRON
NO!
27 012C12

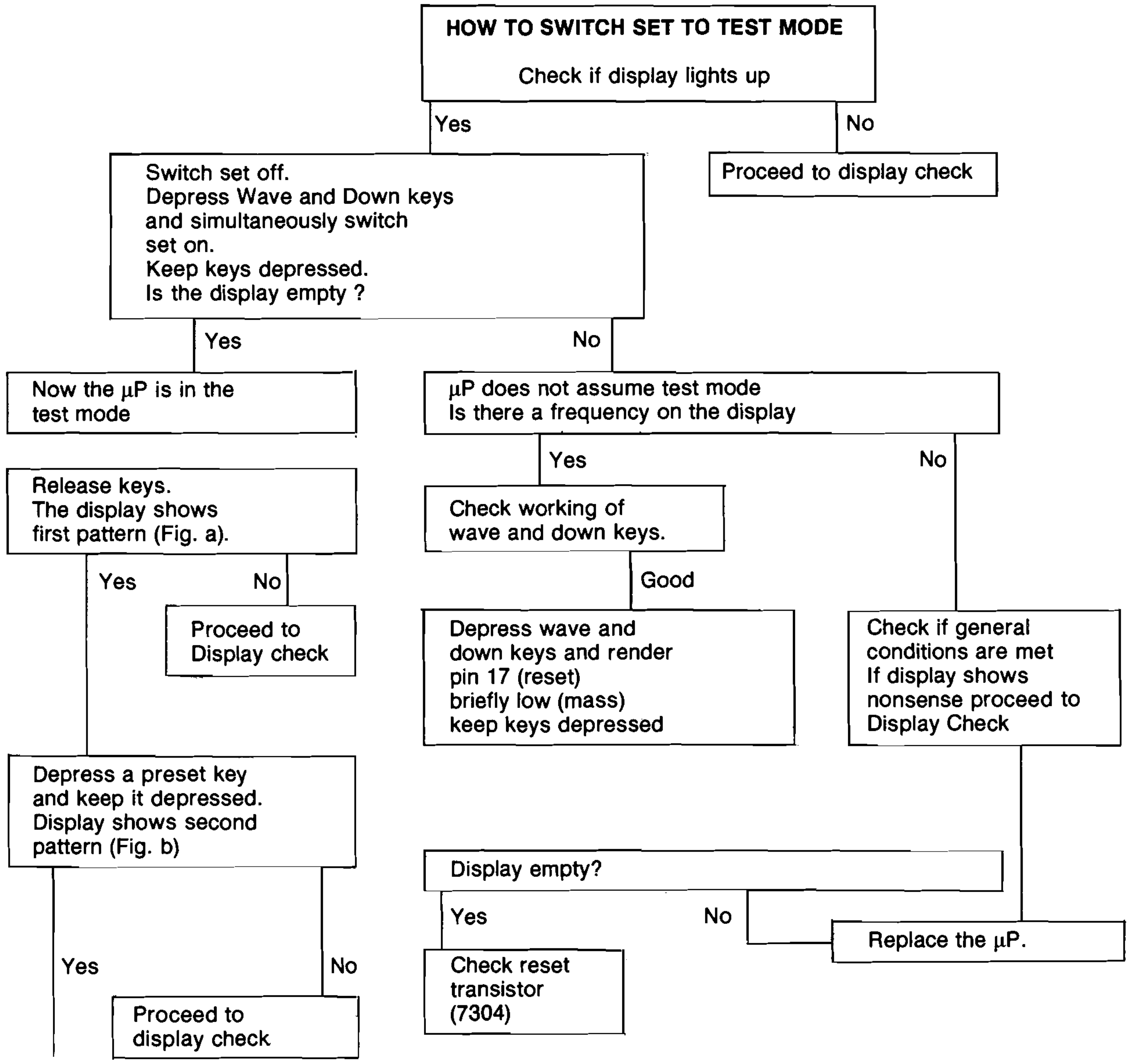
Fig. 14

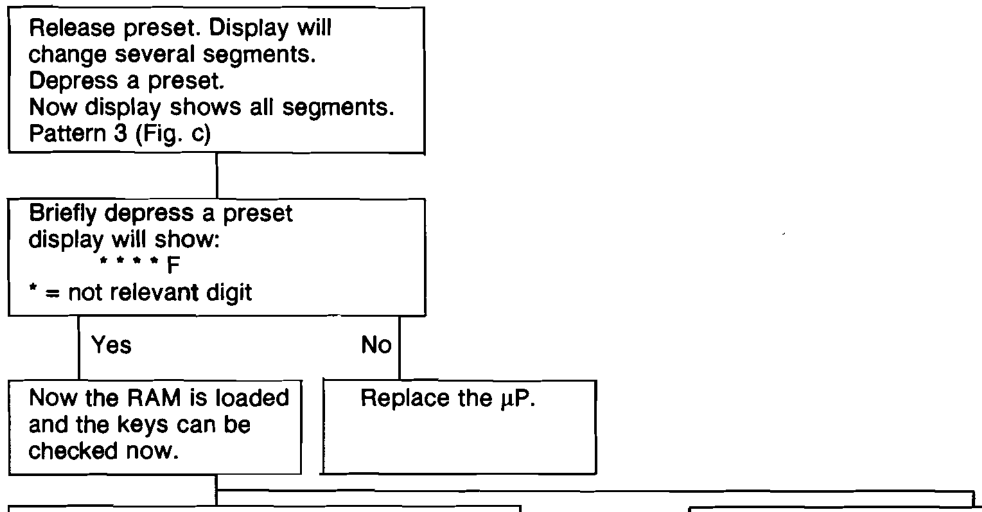
SERVICE TEST PROGRAM TMP47C221AF

With the microprocessor the following parts can be tested :
a) microprocessor section
b) display
c) ram
d) I/O's

General conditions

- A key should be depressed for at least 20ms before it will be accepted.
- The time lapsed before the next key is depressed should be at least 50 ms.
- Power supply voltage +5 V (pins 26–18–58)
- Voltage across super cap. 2302 should lie between 2 and 5 V (to be measured across capacitor).
- Clock frequency 4 MHz (pin 10–11).
- Set in tuner mode.


HOW TO SWITCH SET TO TEST MODE
Check if display lights up
Yes
No
Switch set off.
Depress Wave and Down keys
and simultaneously switch
set on.
Keep keys depressed.
Is the display empty ?
Proceed to display check
Yes
No
Now the µP is in the
test mode
µP does not assume test mode
Is there a frequency on the display
Release keys.
The display shows
first pattern (Fig. a).
Yes
No
Check working of
wave and down keys.
Yes
No
Proceed to
Display check
Good
Depress wave and
down keys and render
pin 17 (reset)
briefly low (mass)
keep keys depressed
Check if general
conditions are met
If display shows
nonsense proceed to
Display Check
Depress a preset key
and keep it depressed.
Display shows second
pattern (Fig. b)
Display empty?
Yes
No
Yes
No
Replace the µP.
Check reset
transistor
(7304)
Proceed to
display check


Release preset. Display will
change several segments.
Depress a preset.
Now display shows all segments.
Pattern 3 (Fig. c)
Briefly depress a preset
display will show:
* * * * F
* = not relevant digit
Yes
No
Now the RAM is loaded
and the keys can be
checked now.
Replace the µP.

KEYS CHECK

Depress key	*Last digit shows*
preset 1	1
preset 2	2
preset 3	3
preset 4	4
preset 5	5
preset 6	6
wave key	E
up–key	d
down key	F

RAM-CHECK

Now the following frequencies have been stored under the presets

preset	LW (kHz)	MW (kHz)	FM (MHz
1	150	522	87.50
2	155	558	97.00
3	254	567	98.00
4	263	1278	99.00
5	263	1494	104.90
6	263	1611	108.00

Note: These frequencies can be used for the adjustments

I/O-CHECK

If the test went well so far, only I/O's can be defective, they can be checked as follows:
Switch the set to the test mode.
Measure an "L" (low) on the following ports:

K0 pins 12,13,14
R6 pins 36,37
R7 pins 39,40,41,42
R8 pins 19,20,21

Perform the RAM load:
Add the following signals to the port to be measured:
R6 pins 35,36,37,38 "L" digit 2 = 0
R6 pins 35,36,37,38 "H" digit 2 = F
R7 pins 39,40,41,42 "L" digit 3 = 0 see page 21
R7 pins 39,40,41,42 "H" digit 3 = F
R8 pins 19,20,21,22 "L" digit 4 = 0
R8 pins 19,20,21,22 "H" digit 4 = F
R9 cannot be checked in this way, this is a serial port.
However you measure on pin 23 data here if you keep the "UP" key depressed, and measure the clock frequency on pin 24.

DISPLAY CHECK

Check common 1 and 2 Fig. e
(pins 4 and 5 of the µP,
pins 1 and 2 of the display)
Check backlight (6329).
With a "full" display you measure on all control lines Fig. f. d

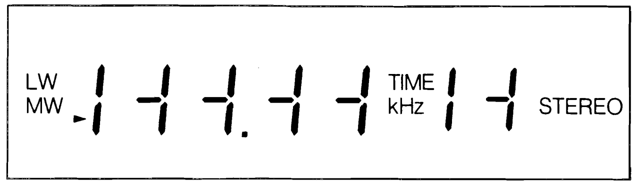

LW
MW
TIME
kHz
STEREO

Fig. a

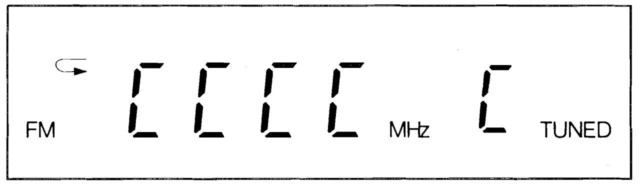

FM
MHz
TUNED

Fig. b

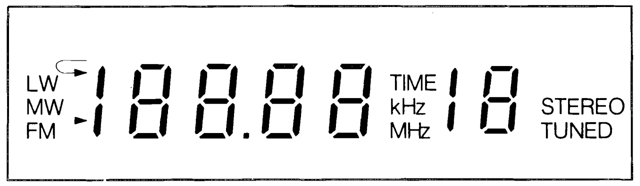
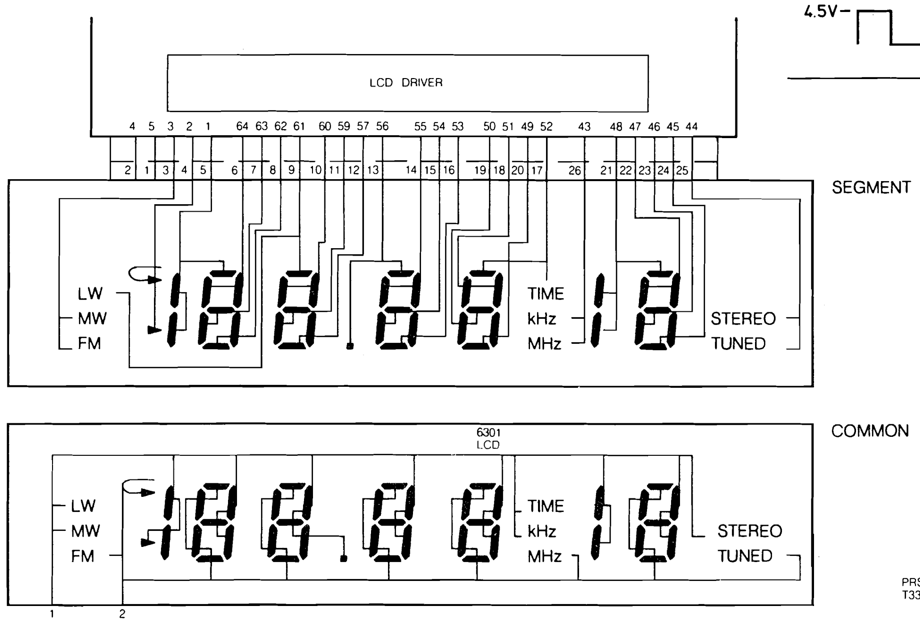

LW
MW
FM
TIME
kHz
MHz
STEREO
TUNED

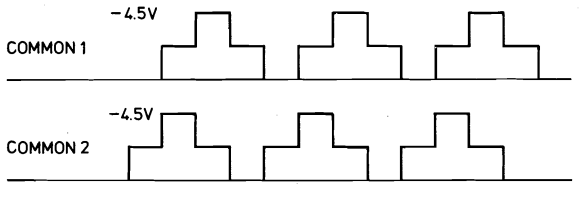
Fig. c


LCD DRIVER
SEGMENT
COMMON
6301
LCD
LW
MW
FM
TIME
kHz
MHz
STEREO
TUNED
1
2

PRS 02721
T33/725

Fig. d

SCOPE: Ampl. : 2V/div.
Time : 200μS/div.



42 251 A12

Fig. e

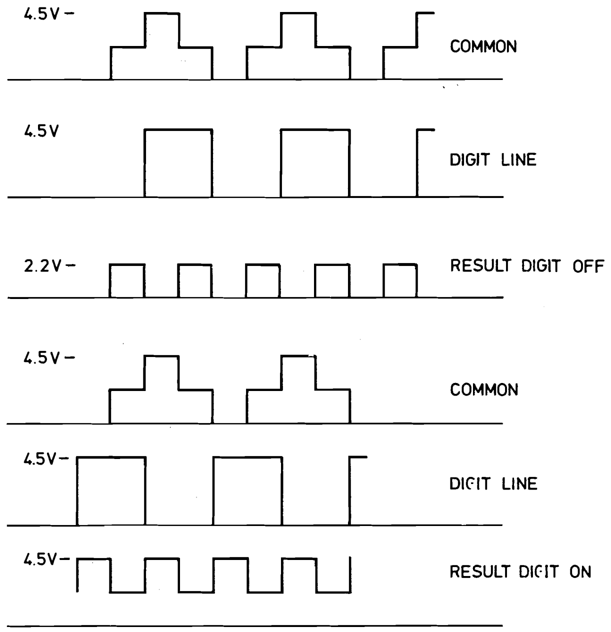


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Fig. f

BLOCK DIAGRAM

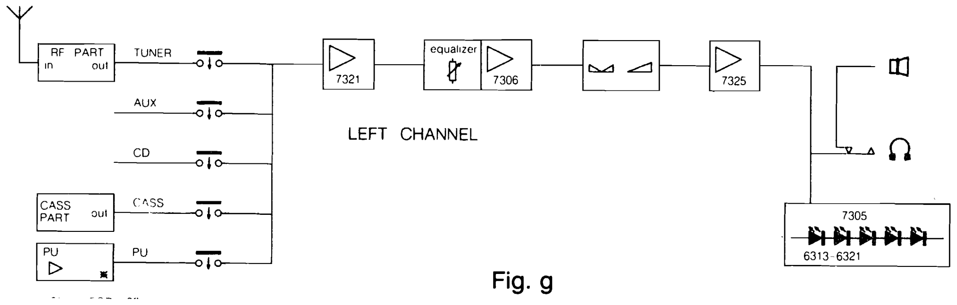
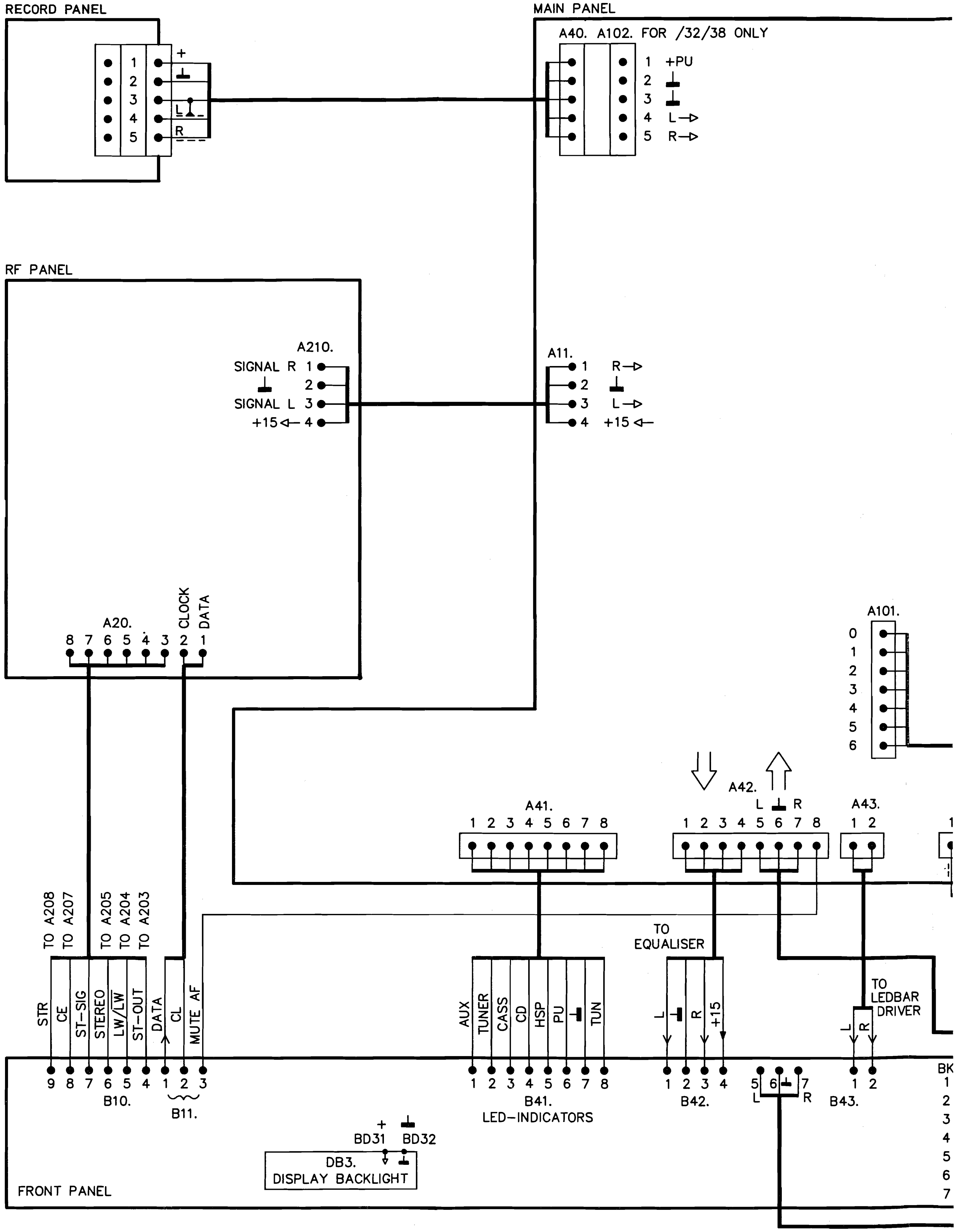

RF PART
in
out
TUNER
AUX
CD
CASS PART
out
CASS
PU
7321
equalizer
7306
LEFT CHANNEL
7325
7305
6313 6321

Fig. g

PRS 02550
T33/720
F1675


RECORD PANEL
MAIN PANEL
A40. A102. FOR /32/38 ONLY
+PU
L
R
RF PANEL
A210.
SIGNAL R
SIGNAL L
+15
A11.
A20.
CLOCK
DATA
A101.
A41.
A42.
A43.
TO A208
TO A207
TO A205
TO A204
TO A203
STR
CE
ST-SIG
STEREO
LW/LW
ST-OUT
DATA
CL
MUTE AF
AUX
TUNER
CASS
CD
HSP
PU
TUN
TO EQUALISER
+15
TO LEDBAR DRIVER
B10.
B11.
B41.
LED-INDICATORS
B42.
B43.
BD31
BD32
DB3.
DISPLAY BACKLIGHT
FRONT PANEL
BK

251 A12

N.

.INE

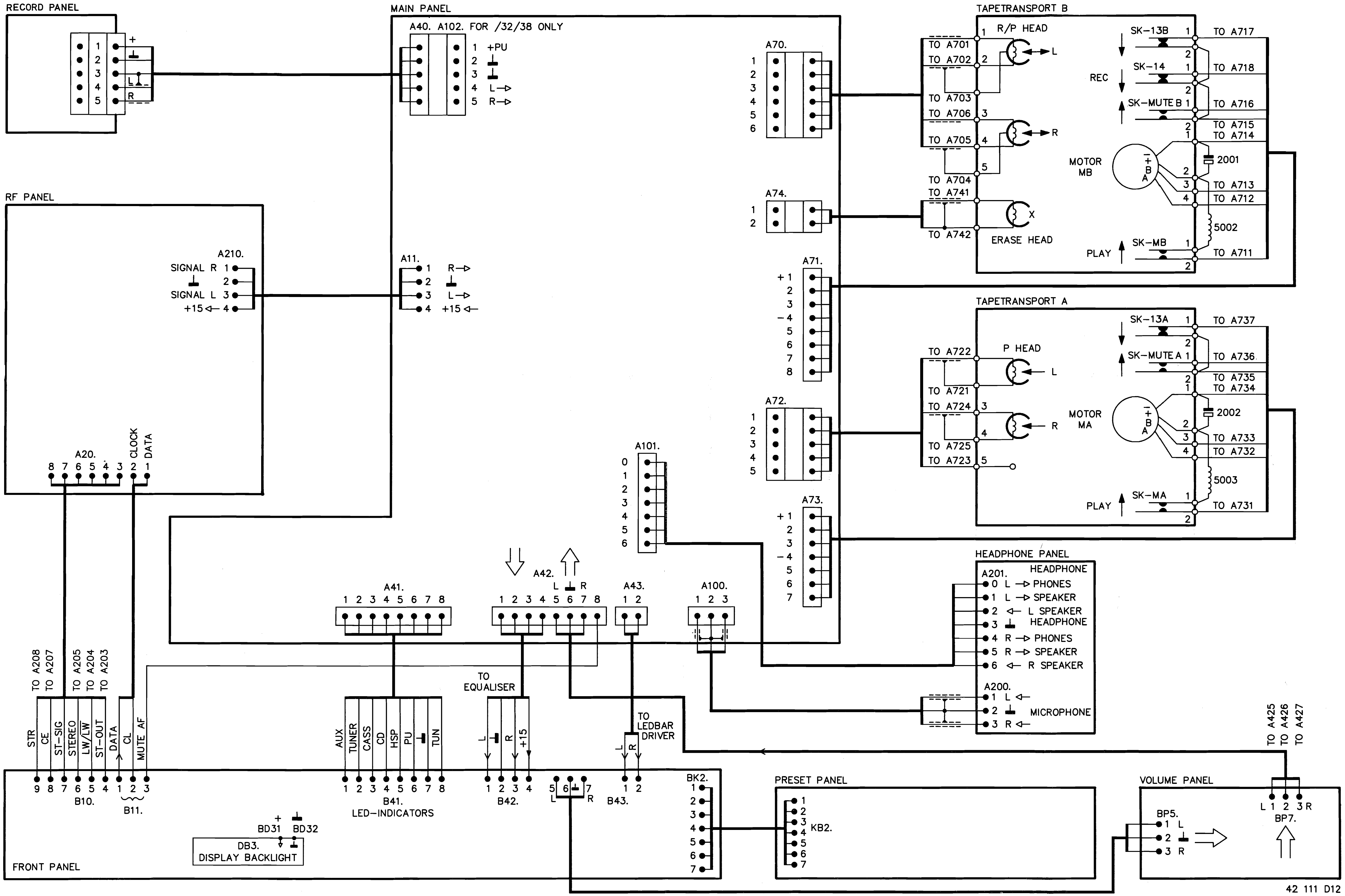
T DIGIT OFF

N

.INE

T DIGIT ON

42 252 A12

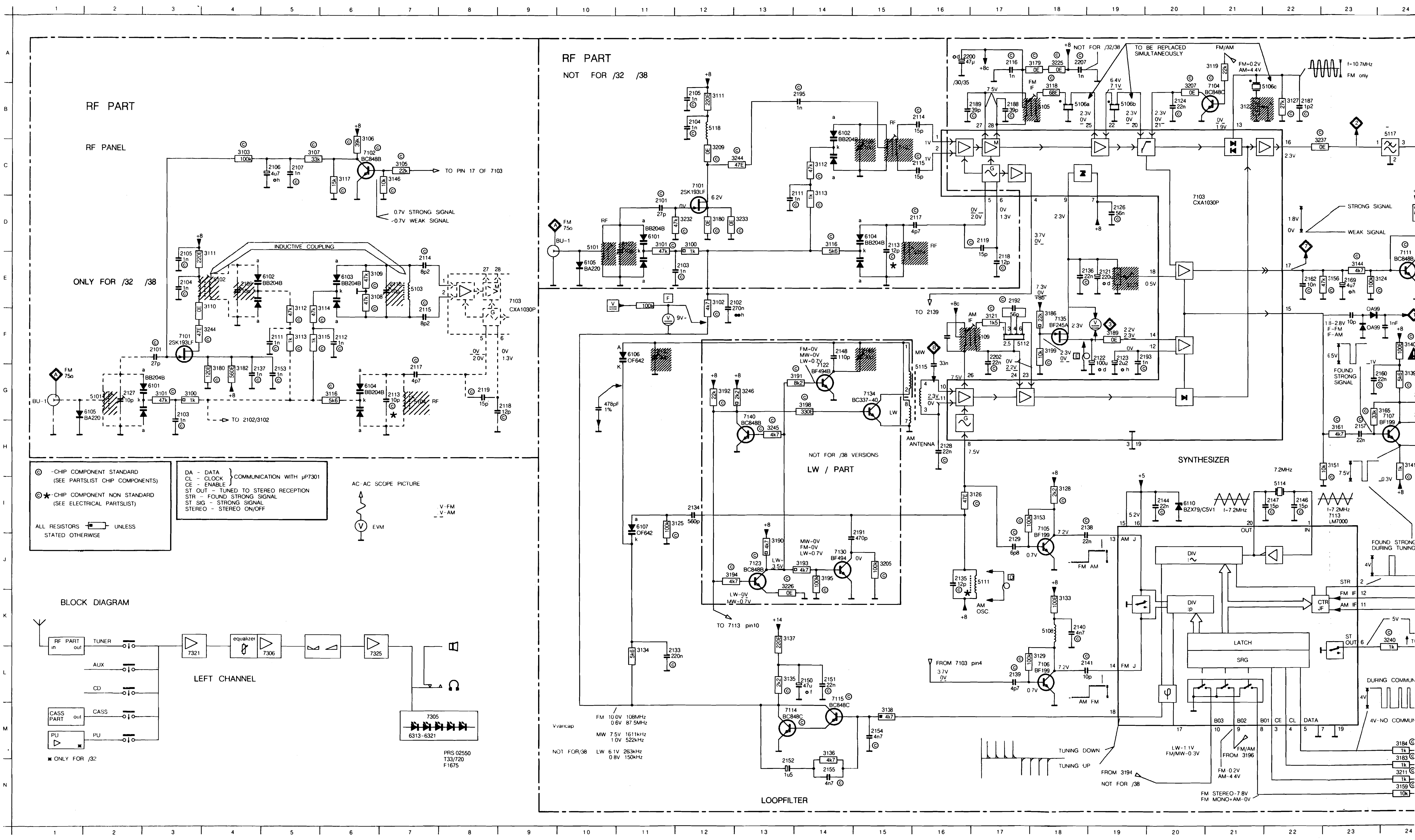

RECORD PANEL
+
L
R
MAIN PANEL
A40. A102. FOR /32/38 ONLY
1 +PU
2
3
4 L
5 R
A70.
A74.
A71.
A72.
A73.
A101.
A11.
1 R
2
3 L
4 +15
RF PANEL
A210.
SIGNAL R 1
2
SIGNAL L 3
+15 4
A20.
8 7 6 5 4 3 2 1
CLOCK
DATA
TAPETRANSPORT B
R/P HEAD
TO A701
TO A702
TO A703
TO A706
TO A705
TO A704
TO A741
TO A742
ERASE HEAD
SK-13B
SK-14
SK-MUTE B
SK-MB
REC
PLAY
MOTOR MB
2001
5002
TO A717
TO A718
TO A716
TO A715
TO A714
TO A713
TO A712
TO A711
TAPETRANSPORT A
P HEAD
TO A722
TO A721
TO A724
TO A725
TO A723
SK-13A
SK-MUTE A
SK-MA
PLAY
MOTOR MA
2002
5003
TO A737
TO A736
TO A735
TO A734
TO A733
TO A732
TO A731
HEADPHONE PANEL
A201.
HEADPHONE
0 L PHONES
1 L SPEAKER
2 L SPEAKER
3 HEADPHONE
4 R PHONES
5 R SPEAKER
6 R SPEAKER
A200.
1 L
2 MICROPHONE
3 R
A41.
A42.
L R
A43.
A100.
TO A208
TO A207
TO A205
TO A204
TO A203
STR
CE
ST-SIG
STEREO
LW/LW
ST-OUT
DATA
CL
MUTE AF
AUX
TUNER
CASS
CD
HSP
PU
TUN
TO EQUALISER
L
R
+15
TO LEDBAR DRIVER
TO A425
TO A426
TO A427
B10.
B11.
B41.
LED-INDICATORS
B42.
B43.
BK2.
+
BD31 BD32
DB3.
DISPLAY BACKLIGHT
FRONT PANEL
PRESET PANEL
KB2.
VOLUME PANEL
BP5.
1 L
2
3 R
BP7.
L 1 2 3 R

42 111 D12

RS 02550
33/720
1675

CS 9 196

2101	D11
2101	F 3
2102	E13
2103	E12
2103	G 3
2104	B12
2104	E 3
2105	B12
2105	E 3
2106	C 5
2107	C 5
2109	C15
2109	E 4
2110	E 7
2111	C14
2111	F 5
2112	F 6
2113	D15
2113	G 7
2114	B16
2114	E 7
2115	C16
2115	F 7
2116	A17
2117	D16
2117	G 7
2118	E17
2118	G 9
2119	D17
2119	G 8
2121	E19
2122	F19
2123	F19
2124	B20
2125	G30
2126	D19
2127	D11
2127	G 2
2128	H16
2129	J17
2132	F11
2133	L12
2134	I12
2135	J16
2136	E19
2137	G 5
2138	I18
2139	L17
2140	K18
2141	L18
2142	G24
2143	G24
2144	I20
2145	G30
2146	I22
2147	I22
2148	F14
2149	F15
2150	L14
2151	L14
2152	N13
2153	G 5
2154	M15
2155	N14
2157	H23
2160	G24
2161	H24
2162	E22
2166	C24
2169	E23
2171	B27
2172	B28
2173	A27
2174	F28
2175	D30
2176	B30
2179	B31
2180	D31
2181	H31
2182	H31
2183	I31
2184	J31
2185	J31
2187	B22
2188	B17
2189	B17
2191	I15
2192	E17
2193	F20
2195	B14
2200	A17
2201	D26
2202	F17
2207	A18
3100	D12
3100	G 3
3101	D11
3101	G 3
3102	E12
3103	C 4
3105	C 7
3106	B 6
3107	C 5
3108	E 7
3109	E 7
3110	E 4
3111	B12
3111	E 4
3112	C14
3112	E 5
3113	C14
3113	F 5
3114	E 6
3115	F 6
3116	D14
3116	G 6
3117	C 6
3118	B18
3119	A21
3121	F17
3122	B21
3123	E19
3124	E24
3125	I12
3126	I17
3127	B22
3128	I18
3129	L18
3133	K18
3134	L11
3135	L13
3136	M14
3137	K13
3138	M15
3139	G24
3140	F24
3141	H24
3143	H25
3144	E23
3145	D24
3146	C 7
3147	E24
3148	E25
3149	D24
3150	D25
3151	H23
3153	I18
3154	A28
3155	B28
3156	E23
3157	F28
3158	F27
3159	N24
3160	E32
3161	H23
3162	D31
3164	B27
3165	G24
3166	B31
3167	D30
3168	B30
3174	H32
3175	H32
3176	J31
3177	I32
3179	A18
3180	D12
3180	G 4
3181	H31
3182	G 4
3183	N24
3184	M24
3186	F18
3189	F19
3190	J13
3191	G14
3192	G12
3193	J14
3194	J12
3195	J14
3196	H30
3197	H30
3198	G14
3199	F18
3202	F30
3205	J15
3207	B20
3208	E26
3209	C12
3211	N24
3212	E31
3214	F32
3215	K27
3216	G32
3218	E32
3225	A18
3226	J13
3230	B32
3231	
3232	
3233	
3237	
3238	
3240	


RF PART
RF PANEL
ONLY FOR /32 /38
INDUCTIVE COUPLING
TO PIN 17 OF 7103
0.7V STRONG SIGNAL
-0.7V WEAK SIGNAL
TO 2102/3102
7103 CXA1030P
BLOCK DIAGRAM
RF PART in out
TUNER
AUX
CD
CASS PART out
CASS
PU
PU
LEFT CHANNEL
7321
equalizer
7306
7325
7305
6313-6321
RF PART
NOT FOR /32 /38
FM 75Ω
BU-1
TO 2139
NOT FOR /38 VERSIONS
LW / PART
TO 7113 pin10
LOOPFILTER
FM 10.0V 108MHz 0.6V 87.5MHz
Vvaricap
MW 7.5V 1611kHz 1.0V 522kHz
NOT FOR/38 LW 6.1V 263kHz 0.8V 150kHz
NOT FOR /32/38
TO BE REPLACED SIMULTANEOUSLY
FM/AM
FM-0.2V AM-4.4V
f=10.7MHz FM only
STRONG SIGNAL
WEAK SIGNAL
SYNTHESIZER
7.2MHz
7113 LM7000
FOUND STRONG SIGNAL
FOUND STRONG DURING TUNING
AM OSC
FROM 7103 pin4
FM AM
AM FM
TUNING DOWN
TUNING UP
FROM 3194
NOT FOR /38
LW-1.1V FM/MW-0.3V
FM/AM FROM 3196
FM-0.2V AM-4.4V
FM STEREO-7.8V FM MONO+AM-0V
DURING COMMU
4V-NO COMMU
LATCH
SRG
DIV
ST OUT
STR
FM IF
AM IF
CTR
AC-AC SCOPE PICTURE
V-FM
V-AM
EVM
PRS 02550
T33/720
F1675
ONLY FOR /32

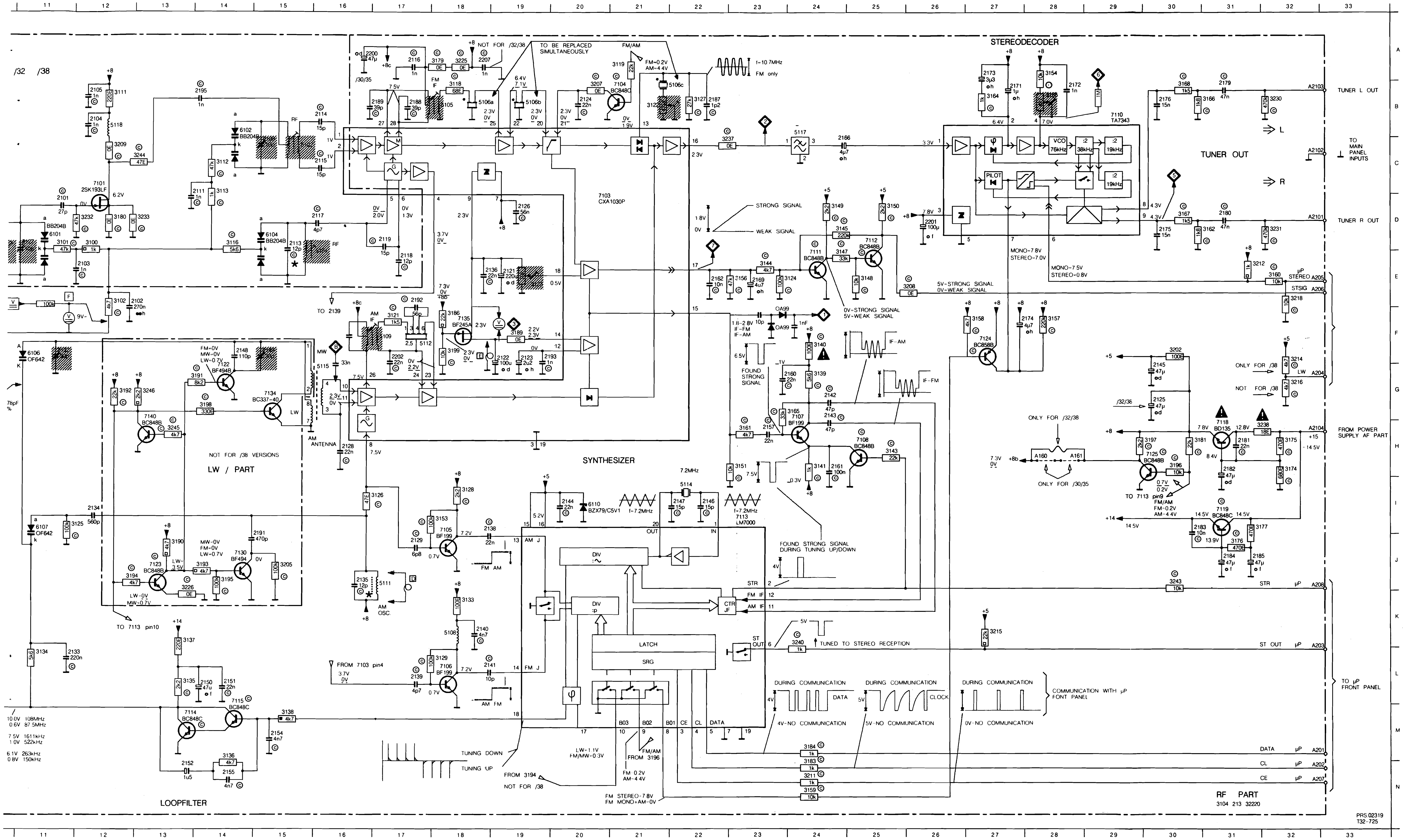
© -CHIP COMPONENT STANDARD
(SEE PARTSLIST CHIP COMPONENTS)

©★-CHIP COMPONENT NON STANDARD
(SEE ELECTRICAL PARTSLIST)

ALL RESISTORS ▭ UNLESS STATED OTHERWISE

DA - DATA
CL - CLOCK
CE - ENABLE
} COMMUNICATION WITH µP7301
ST OUT - TUNED TO STEREO RECEPTION
STR - FOUND STRONG SIGNAL
ST SIG - STRONG SIGNAL
STEREO - STEREO ON/OFF

8	B17 2200	A17 3101	D11 3107	C 5 3112	C14 3116	D14 3122	B21 3128	I 18 3137	K13 3144	E23 3150	D25 3157	F28 3164	B27 3175	H32 3181	H31 3190	J13 3196	H30 3207	B20 3215	K27 3231	D32 3243	J30 5101	G 2 5105	B18 5111	J17 6101	G 3 6105	E10 7102	C 6 7107	G24 7114	M13 7124	F27
9	B17 2201	D26 3101	G 3 3108	E 7 3112	E 5 3116	G 6 3123	E19 3129	L18 3138	M15 3145	D24 3151	H23 3158	F27 3165	G24 3176	J31 3182	G 4 3191	G14 3197	H30 3208	E26 3216	G32 3232	D12 3244	F 4 5102	C15 5106a	B18 5112	F17 6102	B14 6105	G 2 7103	D20 7108	H25 7115	L14 7125	H30
1	I 15 2202	F17 3102	E12 3109	E 7 3113	C14 3117	C 6 3124	E24 3133	K18 3139	G24 3146	C 7 3153	I 18 3159	N24 3166	B31 3177	I 32 3183	N24 3192	G12 3198	G14 3209	C12 3218	E32 3233	D13 3244	C13 5102	E 4 5106b	B19 5114	I 22 6102	E 5 6106	F11 7103	E 9 7110	B29 7118	H31 7130	J14
2	E17 2207	A18 3103	C 4 3110	E 4 3113	F 5 3118	B18 3125	I 12 3134	L11 3140	F24 3147	E24 3154	A28 3160	E32 3167	D30 3179	A18 3184	M24 3193	J14 3199	F18 3211	N24 3225	A18 3237	C22 3245	H13 5103	E 7 5106c	B22 5115	G16 6103	E 6 6107	I 11 7104	B21 7111	E24 7119	I 31 7134	G15
3	F20 3100	D12 3105	C 7 3111	B12 3114	E 6 3119	A21 3126	I 17 3135	L13 3141	H24 3148	E25 3155	B28 3161	H23 3168	B30 3180	D12 3186	F18 3194	J12 3202	F30 3212	E31 3226	J13 3238	H32 3246	G13 5104	E16 5108	K18 5118	B12 6104	D15 7101	C12 7105	I 18 7112	D25 7122	G14 7135	F18
5	B14 3100	G 3 3106	B 6 3111	E 4 3115	F 6 3121	F17 3127	B22 3136	M14 3143	H25 3149	D24 3156	E23 3162	D31 3174	H32 3180	G 4 3189	F19 3195	J14 3205	J15 3214	F32 3230	B32 3240	K24 5101	D10 5104	G 7 5109	F17 6101	D11 6104	G 6 7101	F 3 7106	L18 7113	I 23 7123	J13 7140	G13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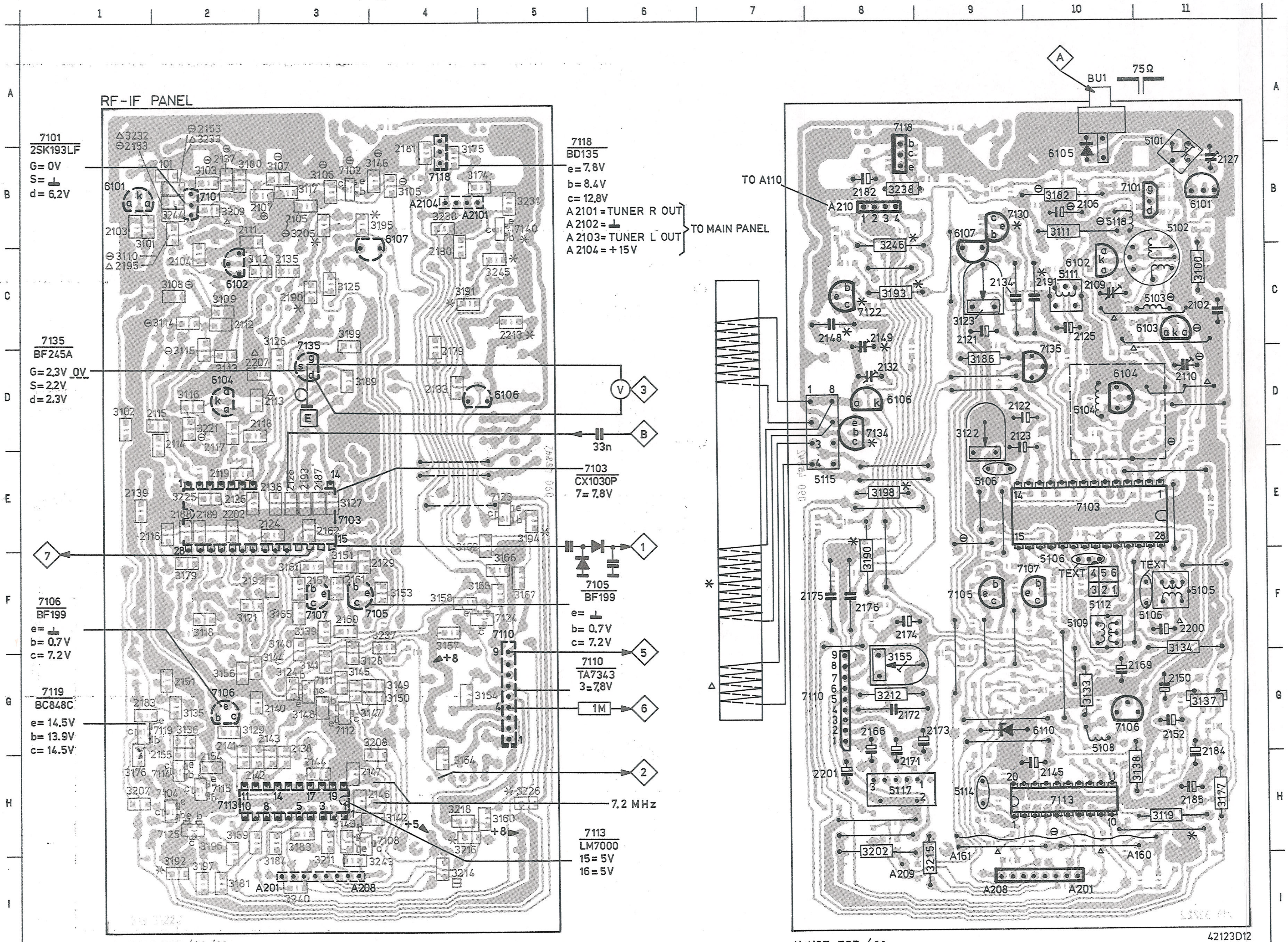
32
33
A
B
C
D
E
F
G
H
I
J
K
L
M
N
/32 /38
STEREODECODER
NOT FOR /32/38
TO BE REPLACED SIMULTANEOUSLY
FM/AM
FM-0.2V
AM-4.4V
f=10.7MHz
FM only
7103
CXA1030P
7110
TA7343
VCO
76kHz
:2
38kHz
19kHz
PILOT
TUNER L OUT
TUNER R OUT
TUNER OUT
TO MAIN PANEL INPUTS
A2103
A2102
A2101
L
R
7101
2SK193LF
6101
BB204B
6102
BB204B
6104
BB204B
RF
STRONG SIGNAL
WEAK SIGNAL
7111
BC848B
7112
BC848B
0V-STRONG SIGNAL
5V=WEAK SIGNAL
5V-STRONG SIGNAL
0V-WEAK SIGNAL
MONO-7.8V
STEREO-7.0V
MONO-7.5V
STEREO-0.8V
µP
STEREO
STSIG
A205
A206
TO 2139
AM IF
7135
BF245A
OA99
IF-FM
IF-AM
FOUND STRONG SIGNAL
7124
BC858B
ONLY FOR /38
NOT FOR /38
LW
A204
/32/36
ONLY FOR /32/38
ONLY FOR /30/35
A160
A161
7118
BD135
7125
BC848B
7119
BC848C
TO 7113 pin9
FM/AM
FM-0.2V
AM-4.4V
A2104
+15
-14.5V
FROM POWER SUPPLY AF PART
6106
OF642
6107
OF642
FM-0V
MW-0V
LW-0.7V
7122
BF494B
7134
BC337-40
7140
BC848B
NOT FOR /38 VERSIONS
LW / PART
MW
AM ANTENNA
SYNTHESIZER
7.2MHz
5114
6110
BZX79/C5V1
f=7.2MHz
7113
LM7000
7105
BF199
7106
BF199
7107
BF199
7108
BC848B
FM AM
AM FM
DIV
LATCH
SRG
CTR
JF
FM IF
AM IF
STR
ST OUT
FOUND STRONG SIGNAL DURING TUNING UP/DOWN
TUNED TO STEREO RECEPTION
DURING COMMUNICATION
DATA
CLOCK
4V-NO COMMUNICATION
5V-NO COMMUNICATION
0V-NO COMMUNICATION
COMMUNICATION WITH µP FONT PANEL
TO µP FRONT PANEL
A208
A203
A201
A202
A207
DATA
CL
CE
MW-0V
FM-0V
LW-0.7V
7130
BF494
7123
BC848B
LW-0V
MW=0.7V
TO 7113 pin10
AM OSC
FROM 7103 pin4
7114
BC848C
7115
BC848C
10.0V 108MHz
0.6V 87.5MHz
7.5V 1611kHz
1.0V 522kHz
6.1V 263kHz
0.8V 150kHz
LOOPFILTER
TUNING DOWN
TUNING UP
FROM 3194
NOT FOR /38
LW-1.1V
FM/MW-0.3V
FROM 3196
FM 0.2V
AM-4.4V
FM STEREO-7.8V
FM MONO+AM-0V
RF PART
3104 213 32220
PRS.02319
T32-725


1
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7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
RF-IF PANEL
7101
2SK193LF
G= 0V
S= ⊥
d= 6.2V
7135
BF245A
G=2.3V 0V
S=2.2V
d=2.3V
7106
BF199
e= ⊥
b= 0.7V
c= 7.2V
7119
BC848C
e= 14.5V
b= 13.9V
c= 14.5V
7118
BD135
e= 7.8V
b= 8.4V
c= 12.8V
A 2101 = TUNER R OUT
A 2102 = ⊥
A 2103 = TUNER L OUT
A 2104 = +15V
TO MAIN PANEL
7103
CX1030P
7= 7.8V
7105
BF199
e= ⊥
b= 0.7V
c= 7.2V
7110
TA7343
3= 7.8V
7113
LM7000
15= 5V
16= 5V
7.2 MHz
33n
1M
+8
+5
TO A110
A210
BU1
75Ω
TEXT
42123D12

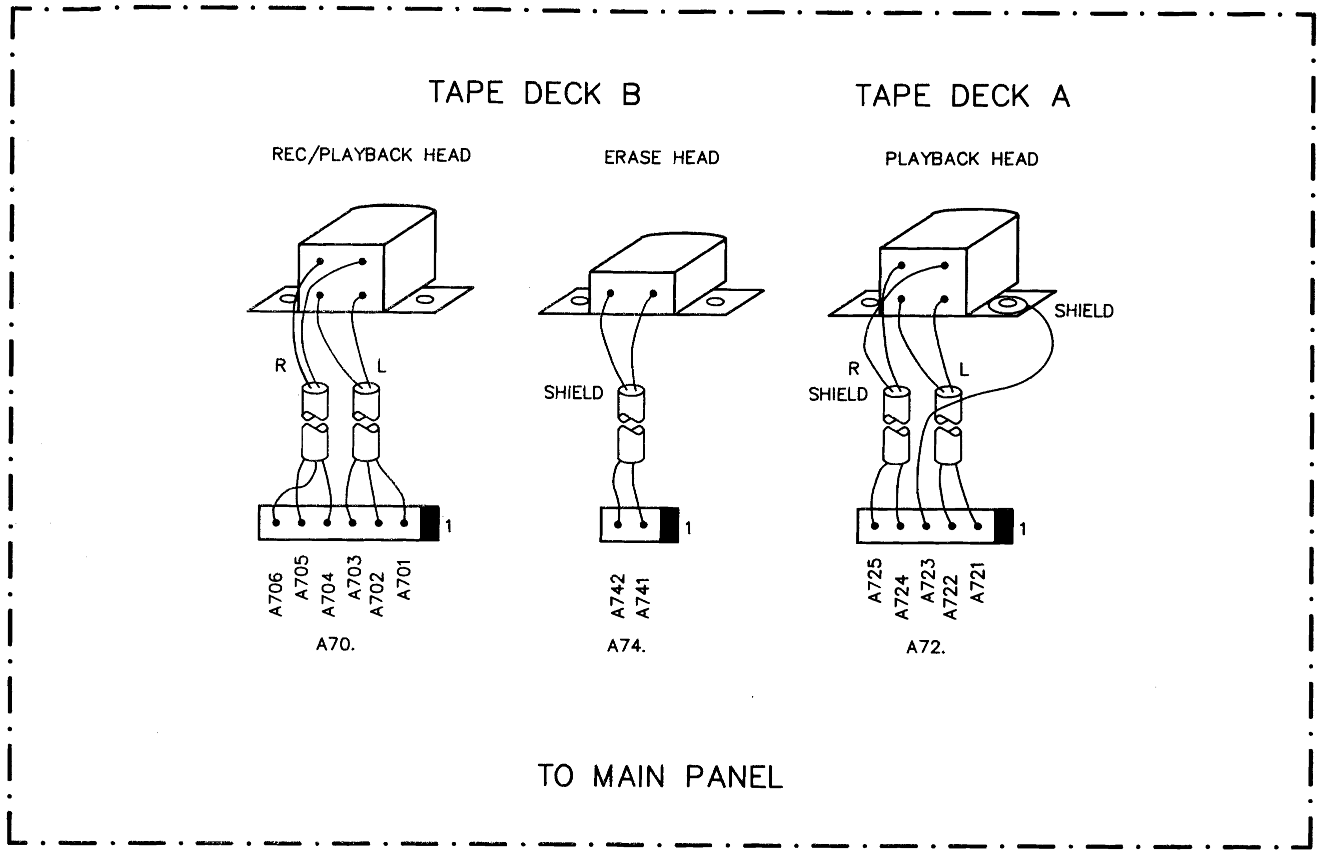
⊖ ONLY FOR /32/38
✳ NOT FOR /38
△ ONLY FOR /30/35
⊟ ONLY FOR /38

A 201 = DATA
A 202 = CL

FROM
B 104 – A 203 = ST OUT
B 105 – A 204 = LW/$\overline{LW}$
B 106 – A 205 = STEREO
B 107 – A 206 = ST SIG
B 108 – A 207 = CE
B 109 – A 208 = STR
TO µP FRONT PANEL

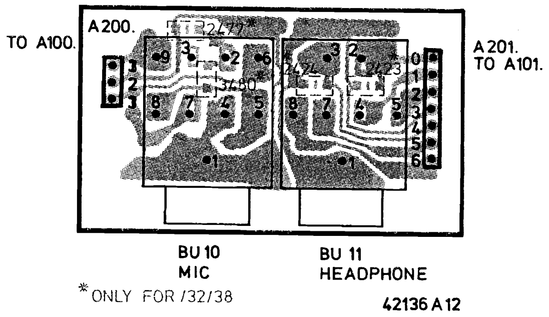
✳ NOT FOR /38
△ ONLY FOR /30/35
⊖ ONLY FOR /32/38
⊟ ONLY FOR /38

2101	B 2	3111	B10	3244	B 2
2102	C11	3112	C 3	3245	C 5
2103	B 1	3113	D 2	3246	C 8
2104	C 2	3114	C 2	5101	B11
2105	B 3	3115	C 2	5102	B11
2106	B10	3116	D 2	5103	C11
2107	B 3	3117	B 3	5104	D10
2109	C10	3118	F 2	5105	F11
2110	D11	3119	H11	5106	E 9
2111	B 2	3121	F 2	5106	F10
2112	C 2	3122	D 9	5106	F11
2113	D 3	3123	C 9	5108	G10
2114	D 2	3124	G 3	5109	F10
2115	D 2	3125	C 3	5111	C10
2116	E 2	3126	C 3	5112	F10
2117	D 2	3127	E 3	5114	H 9
2118	D 3	3128	F 4	5115	E 8
2119	E 2	3129	G 3	5117	H 8
2121	C 9	3133	G10	5118	B10
2122	D 9	3134	F11	6101	B 1
2123	D10	3135	G 2	6101	B11
2124	E 3	3136	G 2	6102	C 2
2125	C10	3137	G11	6102	C10
2126	E 2	3138	H11	6103	C11
2127	B11	3139	F 3	6104	D 2
2128	E 3	3140	F 3	6104	D10
2129	F 4	3141	G 3	6105	B10
2132	D 8	3142	H 4	6106	D 5
2133	D 4	3144	G 3	6106	D 8
2134	C 9	3145	G 4	6107	B 9
2135	C 3	3146	B 4	6110	G10
2136	E 3	3147	G 4	7101	B 2
2137	B 2	3148	G 3	7101	B11
2138	G 3	3149	G 4	7102	B 3
2139	E 1	3150	G 4	7103	E 3
2140	G 3	3151	F 3	7103	E10
2141	G 2	3153	F 4	7104	H 2
2142	H 3	3154	G 5	7105	F 4
2143	G 3	3155	G 8	7105	F 9
2144	H 3	3156	G 2	7106	G 2
2145	H10	3157	F 4	7106	G10
2146	H 4	3158	F 4	7107	F 3
2147	H 4	3159	H 2	7107	F10
2148	C 8	3160	H 5	7108	H 4
2149	C 8	3161	F 3	7110	F 5
2150	G11	3162	E 4	7110	G 8
2151	G 2	3164	H 4	7111	G 3
2152	G11	3165	F 3	7112	G 3
2153	A 1	3166	F 5	7113	H 2
2153	A 2	3167	F 5	7113	H10
2154	G 2	3168	F 5	7114	H 2
2155	G 2	3174	B 5	7115	H 2
2157	F 3	3175	B 4	7118	B 4
2160	F 3	3176	H 1	7118	A 8
2161	F 3	3177	H11	7119	G 2
2162	E 3	3179	F 2	7122	C 8
2166	G 8	3180	B 2	7123	E 5
2169	G11	3181	I 2	7124	F 5
2171	H 8	3182	B10	7125	H 2
2172	G 8	3183	H 3	7130	B 9
2173	G 9	3184	H 3	7134	D 8
2174	F 8	3186	D 9	7135	C 3
2175	F 8	3189	D 4	7135	D10
2176	F 8	3190	F 8	7140	B 5
2179	C 4	3191	C 4	BU 1	A10
2180	C 4	3192	H 2		
2181	A 4	3193	C 8		
2182	B 8	3194	E 5		
2183	G 2	3196	H 2		
2184	G11	3197	H 2		
2185	H11	3198	E 8		
2187	E 3	3199	C 3		
2188	E 2	3202	H 8		
2189	E 2	3205	B 3		
2190	C 3	3207	H 2		
2191	C10	3208	G 4		
2192	F 2	3209	B 2		
2193	E 3	3211	H 3		
2195	C 1	3212	G 8		
2200	F11	3214	I 4		
2201	H 8	3215	H 9		
2202	E 2	3216	H 4		
2207	D 3	3218	H 4		
2213	C 5	3221	D 2		
3100	C11	3225	E 2		
3101	B 1	3226	H 5		
3102	D 1	3230	B 4		
3103	B 2	3231	B 5		
3105	B 4	3232	A 1		
3106	B 3	3233	A 2		
3107	B 3	3237	F 4		
3108	C 2	3238	B 8		
3109	C 2	3240	I 3		
3110	C 1	3243	H 4		


TAPE DECK B
TAPE DECK A
REC/PLAYBACK HEAD
ERASE HEAD
PLAYBACK HEAD
SHIELD
R
L
A706 A705 A704 A703 A702 A701
A742 A741
A725 A724 A723 A722 A721
A70.
A74.
A72.
TO MAIN PANEL

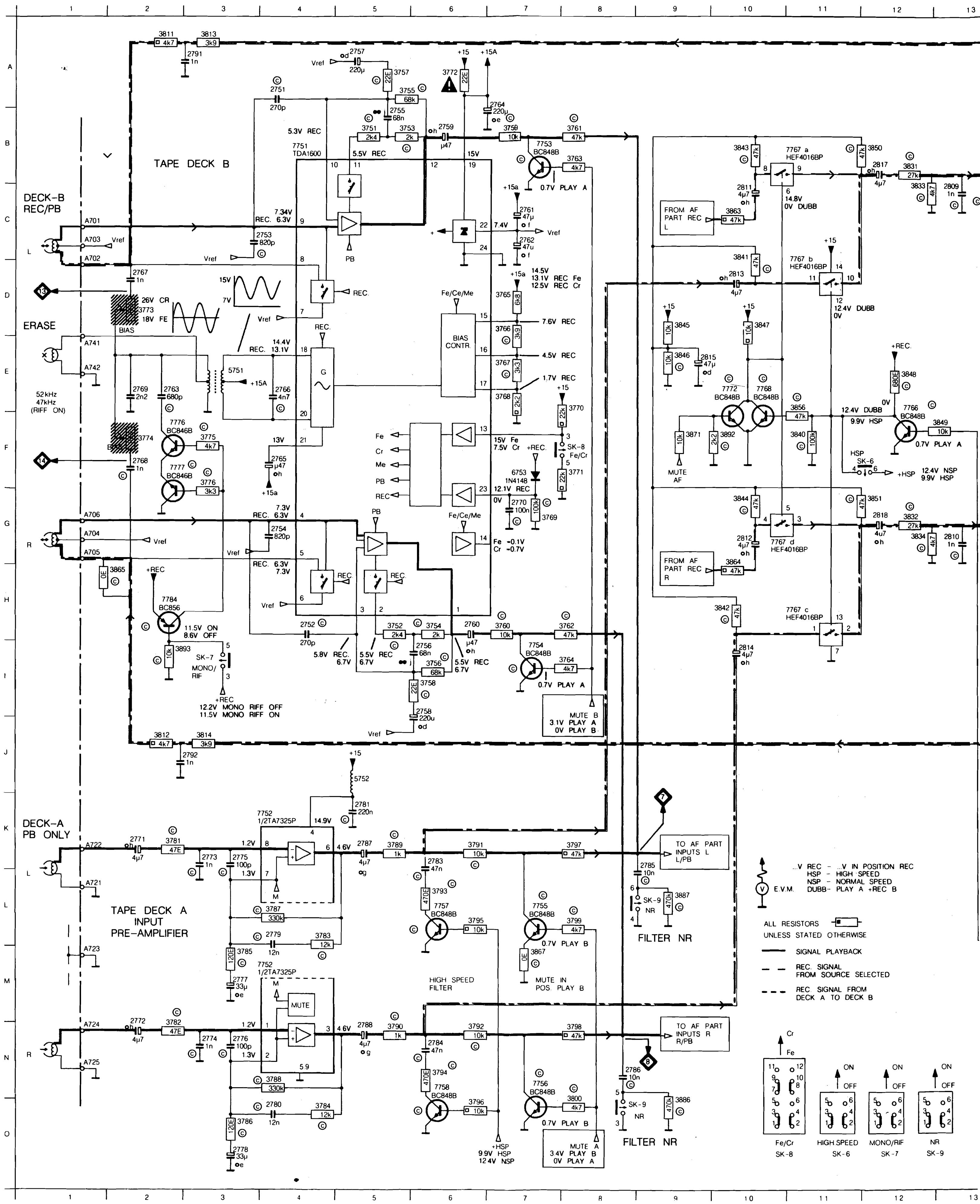
42 108 C12

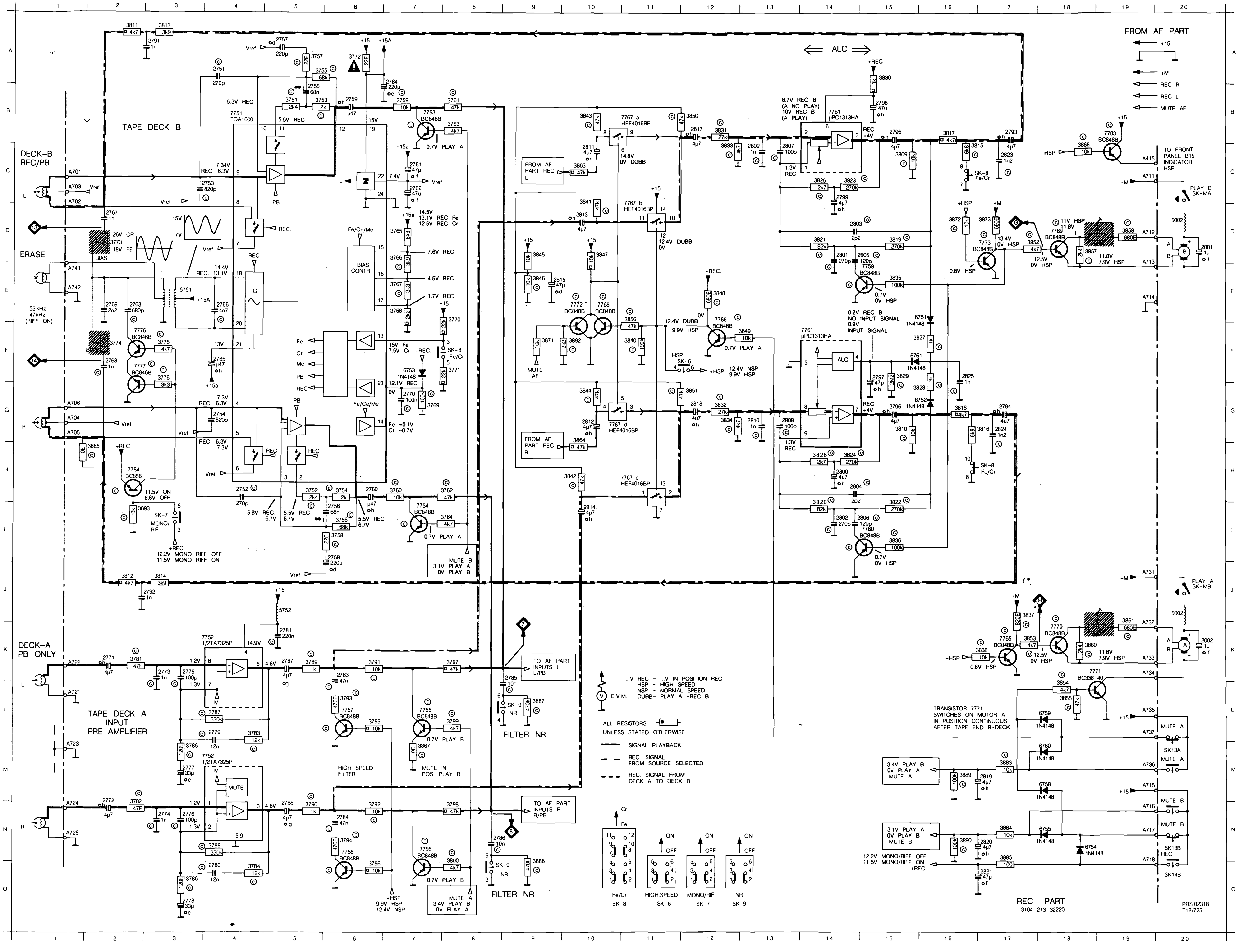
HEADPHONE PANEL


TO A100.
A200.
A201.
TO A101.
BU 10
MIC
BU 11
HEADPHONE

*ONLY FOR /32/38

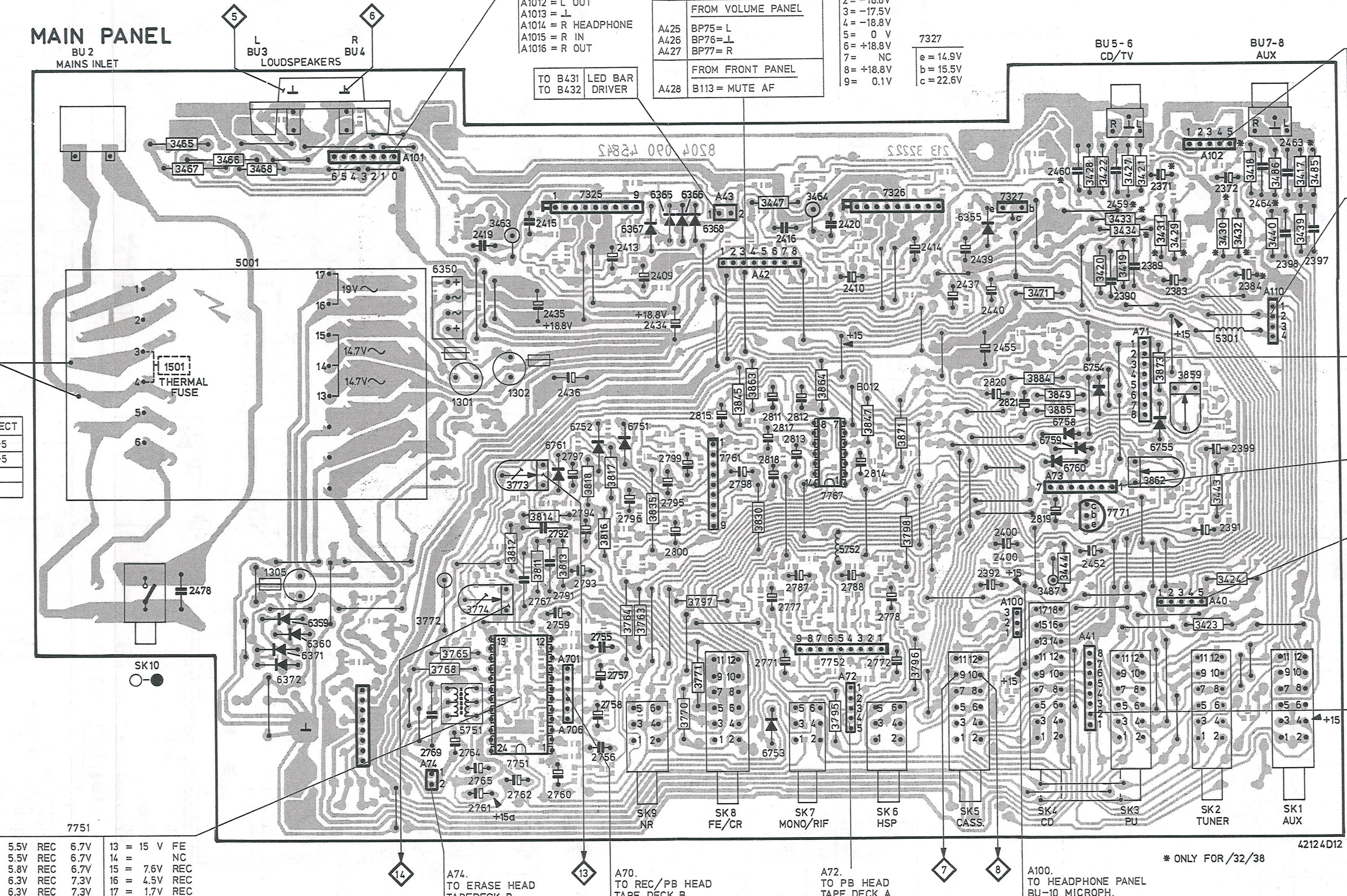
42136 A12


TAPE DECK B
DECK-B REC/PB
ERASE
52kHz 47kHz (RIFF ON)
BIAS
BIAS CONTR
7751 TDA1600
DECK-A PB ONLY
TAPE DECK A INPUT PRE-AMPLIFIER
7752 1/2TA7325P
MUTE
HIGH SPEED FILTER
MUTE IN POS. PLAY B
FILTER NR
FROM AF PART REC L
FROM AF PART REC R
TO AF PART INPUTS L L/PB
TO AF PART INPUTS R R/PB
7767 a HEF4016BP
7767 b HEF4016BP
7767 c HEF4016BP
7767 d HEF4016BP
MUTE AF
MUTE B 3.1V PLAY A 0V PLAY B
MUTE A 3.4V PLAY B 0V PLAY A
..V REC - ..V IN POSITION REC
HSP - HIGH SPEED
NSP - NORMAL SPEED
DUBB - PLAY A +REC B
E.V.M.
ALL RESISTORS UNLESS STATED OTHERWISE
SIGNAL PLAYBACK
REC. SIGNAL FROM SOURCE SELECTED
REC SIGNAL FROM DECK A TO DECK B
Fe/Cr SK-8
HIGH SPEED SK-6
MONO/RIF SK-7
NR SK-9
ON
OFF


TAPE DECK B
DECK-B REC/PB
ERASE
52kHz
47kHz
(RIFF ON)
DECK-A PB ONLY
TAPE DECK A INPUT PRE-AMPLIFIER
7751 TDA1600
BIAS CONTR
BIAS
5.3V REC
5.5V REC
7.34V REC. 6.3V
14.4V REC. 13.1V
26V CR
18V FE
15V
7V
Vref
PB
REC
Fe/Ce/Me
Fe
Cr
Me
7.6V REC
4.5V REC
1.7V REC
15V Fe
7.5V Cr
12.1V REC
0V
Fe -0.1V
Cr -0.7V
14.5V
13.1V REC Fe
12.5V REC Cr
7753 BC848B
0.7V PLAY A
7754 BC848B
MUTE B
3.1V PLAY A
0V PLAY B
7776 BC846B
7777 BC846B
7784 BC856
11.5V ON
8.6V OFF
SK-7
MONO/RIF
+REC
12.2V MONO RIFF OFF
11.5V MONO RIFF ON
SK-8 Fe/Cr
7752 1/2TA7325P
14.9V
MUTE
4.6V
HIGH SPEED FILTER
7757 BC848B
7758 BC848B
7755 BC848B
7756 BC848B
0.7V PLAY B
MUTE IN POS PLAY B
MUTE A
3.4V PLAY B
0V PLAY A
+HSP
9.9V HSP
12.4V NSP
TO AF PART INPUTS L L/PB
TO AF PART INPUTS R R/PB
SK-9 NR
FILTER NR
FROM AF PART REC L
FROM AF PART REC R
7767 a HEF4016BP
7767 b HEF4016BP
7767 c HEF4016BP
7767 d HEF4016BP
14.8V
0V DUBB
12.4V DUBB
0V
7772 BC848B
7768 BC848B
MUTE AF
7766 BC848B
9.9V HSP
0.7V PLAY A
HSP
SK-6
12.4V NSP
9.9V HSP
ALC
8.7V REC B
(A NO PLAY)
10V REC B
(A PLAY)
7761 µPC1313HA
REC +4V
1.3V REC
7759 BC848B
7760 BC848B
0.7V
0V HSP
0.2V REC B
NO INPUT SIGNAL
0.9V
INPUT SIGNAL
6751 1N4148
6752 1N4148
6761 1N4148
7773 BC848B
13.4V
0V HSP
0.8V HSP
7769 BC848B
11V HSP
1.8V
12.5V
0V HSP
11.8V
7.9V HSP
7783 BC848B
HSP
TO FRONT PANEL B15 INDICATOR HSP
FROM AF PART
+15
+M
REC R
REC L
MUTE AF
PLAY B SK-MA
PLAY A SK-MB
5002
2001 1µ
2002 1µ
7765 BC848B
7770 BC848B
0V HSP
7771 BC338-40
TRANSISTOR 7771 SWITCHES ON MOTOR A IN POSITION CONTINUOUS AFTER TAPE END B-DECK
6759 1N4148
6760 1N4148
6758 1N4148
6755 1N4148
6754 1N4148
3.4V PLAY B
0V PLAY A
MUTE A
3.1V PLAY A
0V PLAY B
MUTE B
12.2V MONO/RIFF OFF
11.5V MONO/RIFF ON
+REC
SK13A
SK13B REC
SK14B
..V REC - ..V IN POSITION REC
HSP - HIGH SPEED
NSP - NORMAL SPEED
DUBB - PLAY A +REC B
E.V.M.
ALL RESISTORS UNLESS STATED OTHERWISE
SIGNAL PLAYBACK
REC. SIGNAL FROM SOURCE SELECTED
REC. SIGNAL FROM DECK A TO DECK B
Cr
Fe
ON
OFF
Fe/Cr SK-8
HIGH SPEED SK-6
MONO/RIF SK-7
NR SK-9
REC PART
3104 213 32220
PRS 02318
T12/725

2001	D20	3840	F11
2002	K20	3841	C10
2751	A 4	3842	H10
2752	H 4	3843	B10
2753	C 4	3844	G10
2754	G 4	3845	D 9
2755	B 5	3846	E 9
2756	I 6	3847	D10
2757	A 5	3848	E12
2758	I 6	3849	F13
2759	B 6	3850	B12
2760	H 6	3851	G12
2761	C 7	3852	D17
2762	C 7	3853	K17
2763	E 2	3854	L18
2764	A 7	3855	L18
2765	F 4	3856	E11
2766	E 4	3857	D18
2767	D 2	3858	D19
2768	F 2	3859	D19
2769	E 2	3860	K18
2770	G 7	3861	J19
2771	K 2	3862	K19
2772	M 2	3863	C10
2773	K 3	3864	G10
2774	N 3	3865	H 2
2775	K 3	3866	C18
2776	N 3	3867	M 7
2777	M 3	3871	F 9
2778	O 3	3872	D16
2779	L 4	3873	D17
2780	O 4	3883	M17
2781	K 5	3884	N17
2783	K 6	3885	N17
2784	N 6	3886	N 9
2785	K 9	3887	L 9
2786	N 9	3889	M16
2787	K 5	3890	N16
2788	N 5	3892	F10
2791	A 3	3893	I 3
2792	J 3	5002	D20
2793	B17	5002	J20
2794	G17	5751	E 3
2795	B15	5752	J 5
2796	G15	6751	E16
2797	F15	6752	G16
2798	B15	6753	F 7
2799	C14	6754	N18
2800	H14	6755	N18
2801	D14	6758	M18
2802	I 14	6759	L18
2803	D14	6760	M18
2804	H14	6761	F15
2805	D15	7751	B 4
2806	I 15	7752	K 4
2807	C13	7752	M 4
2808	G13	7753	B 7
2809	C13	7754	I 7
2810	G13	7755	L 7
2811	C10	7756	N 7
2812	G10	7757	L 6
2813	D10	7758	N 6
2814	I 10	7759	E15
2815	E10	7760	I 15
2817	B12	7761	B14
2818	G12	7761	F14
2819	M17	7765	K17
2820	N17	7766	E12
2821	O17	7767	B11
2823	C17	7767	C11
2824	G17	7767	G10
2825	F16	7767	H11
3751	B 5	7768	E10
3752	H 5	7769	D18
3753	B 5	7770	K18
3754	H 6	7771	K18
3755	A 5	7772	E10
3756	I 6	7773	D17
3757	A 5	7776	F 2
3758	I 6	7777	F 2
3759	B 7	7783	B19
3760	H 7	7784	H 2
3761	B 8	SK-6	F12
37 2	H 8	SK-7	I 3
3763	B 8	SK-8	F 8
3764	I 8	SK-8	C17
3765	D 7	SK-8	H17
3766	D 7	SK-9	L 9
3767	E 7	SK-9	O 9
3768	E 7	SK-MA	C20
3769	G 7	SK-MB	J20
3770	E 8	SK13A	M20
3771	F 8	SK13B	N20
3772	A 6	SK14B	O20
3773	D 2		
3774	F 2		
3775	F 3		
3776	F 3		
3781	K 2		
3782	M 2		
3783	L 4		
3784	O 4		
3785	M 3		
3786	O 3		
3787	L 4		
3788	N 4		
3789	K 5		
3790	N 5		
3791	K 6		
3792	N 6		
3793	L 6		
3794	N 6		
3795	L 6		
3796	O 6		
3797	K 8		
3798	N 8		
3799	L 8		
3800	N 8		
3809	C15		
3810	G15		
3811	A 2		
3812	J 2		
3813	A 3		
3814	J 3		
3815	C17		
3816	G17		
3817	B16		
3818	G16		
3819	D15		
3820	H14		
3821	D14		
3822	H15		
3823	C14		
3824	H14		
3825	C14		
3826	H14		
3827	F16		
3828	G16		
3829	F15		
3830	A15		
3831	B12		
3832	G12		
3833	C12		
3834	G12		
3835	E15		
3836	I 15		
3837	J17		
3838	K17		

MAIN PANEL


BU 2
MAINS INLET
L
BU3
R
BU4
LOUDSPEAKERS
5
6
BU5-6
CD/TV
BU7-8
AUX
5001
1501
THERMAL FUSE
19V~
14.7V~
14.7V~
6350
1301
1302
1305
SK10
A101
A102
A42
A43
7325
7326
7327
A110
A71
A73
A40
A41
A100
A72
A70
A74
A706
7751
7752
5751
5752
5301
+18.8V
+15
SK9
NR
SK8
FE/CR
SK7
MONO/RIF
SK6
HSP
SK5
CASS.
SK4
CD
SK3
PU
SK2
TUNER
SK1
AUX
14
13
7
8
42124D12

SOLDERING POINTS WHEN
REPLACING THERMAL FUSE

BU-A201.
TO HEADPHONE PANEL

A1010 = L HEADPHONE
A1011 = L IN
A1012 = L OUT
A1013 = ⊥
A1014 = R HEADPHONE
A1015 = R IN
A1016 = R OUT

TO B431 TO B432	LED BAR DRIVER

A42.

	TO FRONT PANEL
A421 A422 A423 A424	B421= L B422= ⊥ B423= R B424= +15 TO EQUALIZER PART
	FROM VOLUME PANEL
A425 A426 A427	BP75= L BP76= ⊥ BP77= R
	FROM FRONT PANEL
A428	B113 = MUTE AF

7325/7326

1 = 0.1V
2 = −18.8V
3 = −17.5V
4 = −18.8V
5 = 0 V
6 = +18.8V
7 = NC
8 = +18.8V
9 = 0.1V

7327

e = 14.9V
b = 15.5V
c = 22.6V

A102.
TO RECORD PLAYER /32/38.

1021 − TO A401 = +M(14.9V)
1022 − TO A402 = ⊥
1023 = ⊥
1024 = L
1025 = R

A110.
TO RF PANEL.

A1101− A2101 = TUN R
A1102− A2102 = ⊥
A1103− A2103 = TUN L
A1104− A2104 = +15V

A71.
FROM MOTOR PART
RECORDER A.

A73.
FROM MOTOR PART
RECORDER B.

A40.
TO RECORD PLAYER /30/35.

A401 = +M (14.9V)
A402 = ⊥
A403 = ⊥
A404 = L
A405 = R

A41.
TO FRONT PANEL B41.
LED INDICATORS

A411 = AUX
A412 = TUNER
A413 = CASS.
A414 = CD
A415 = HSP
A416 = PU
A417 = ⊥
A418 = TUN

MAINS	WINDING	INTERCONNECT	
110V	4−2	1−3	2−5
127V	4−6	1−3	2−5
220V	4−5	1−2	
240V	4−6	1−2	

7751

1 =	5.5V	REC	6.7V		13 =	15 V	FE
2 =	5.5V	REC	6.7V		14 =		NC
3 =	5.8V	REC	6.7V		15 =	7.6V	REC
4 =	6.3V	REC	7.3V		16 =	4.5V	REC
5 =	6.3V	REC	7.3V		17 =	1.7V	REC
6 =	V REF	=	7.4V		18 =	~	
7 =	V REF	=	7.4V		19 =	15 V	
8 =	6.5V	REC	7.3V		20 =	~	
9 =	6.5V	REC	7.3V		21 =	13 V	
10 =	~				22 =	7.4V	
11 =	5.5V	REC			23 =	12.1V	REC
12 =	~				24 =	⊥	

A74.
TO ERASE HEAD
TAPEDECK B

A70.
TO REC/PB HEAD
TAPE DECK B

A701 = L→
A702 = REC L
A703 = V REF
A704 = V REF
A705 = REC R
A706 R→

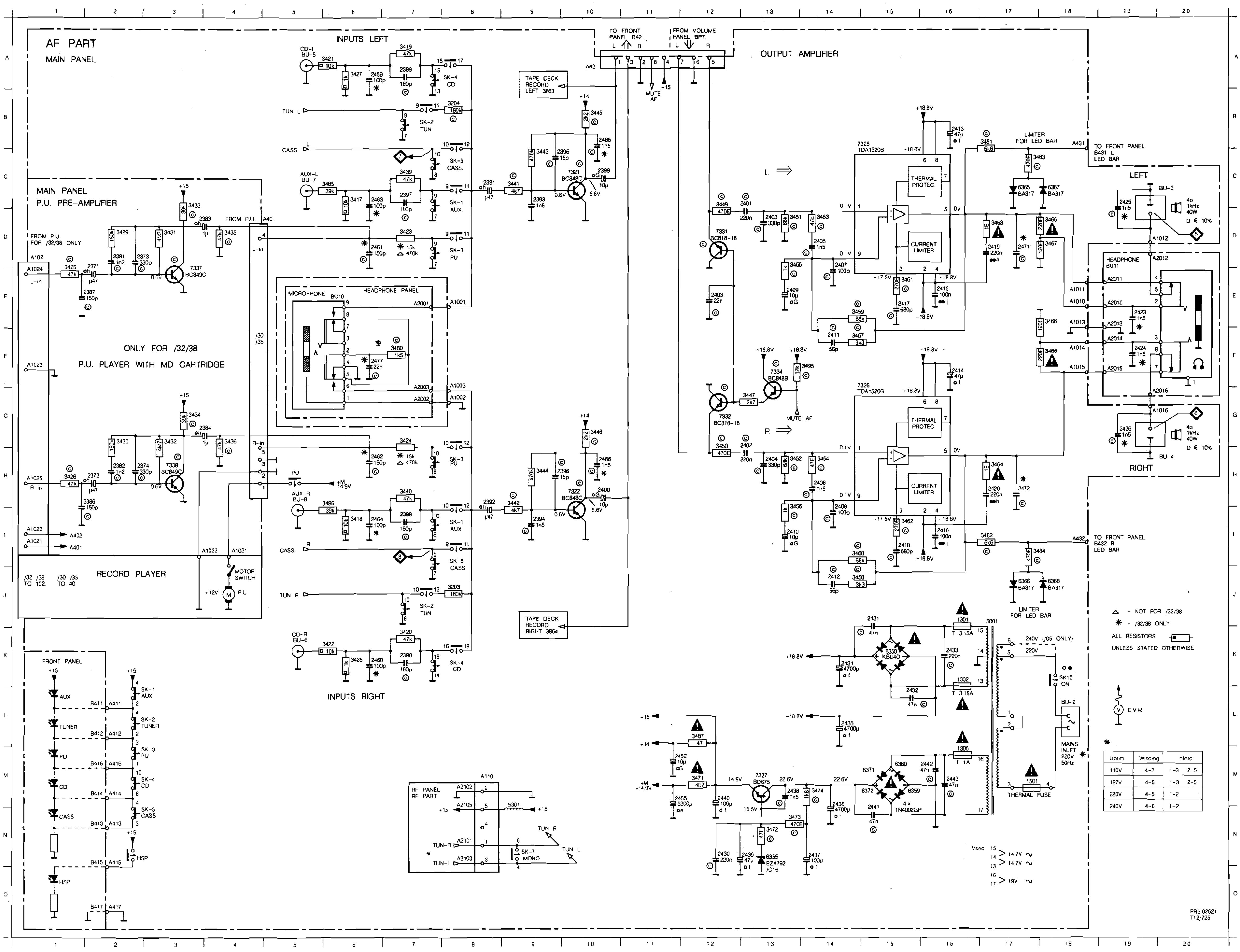
A72.
TO PB HEAD
TAPE DECK A

A721 = ⊥
A722 = L→
A723 = ⊥
A724 = R→
A725 = ⊥.

A100.
TO HEADPHONE PANEL
BU-10 MICROPH.

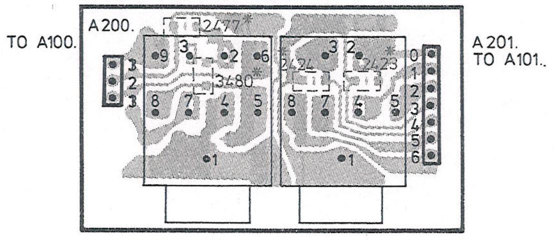
A1001− B2001 = L
A1002− B2002 = ⊥
A1003− B2003 = R

* ONLY FOR /32/38


AF PART
MAIN PANEL
INPUTS LEFT
OUTPUT AMPLIFIER
TO FRONT PANEL B42
FROM VOLUME PANEL BP7
TAPE DECK RECORD LEFT 3863
TAPE DECK RECORD RIGHT 3864
MUTE AF
MAIN PANEL
P.U. PRE-AMPLIFIER
FROM P.U. FOR /32/38 ONLY
ONLY FOR /32/38
P.U. PLAYER WITH MD CARTRIDGE
MICROPHONE
HEADPHONE PANEL
RECORD PLAYER
MOTOR SWITCH
INPUTS RIGHT
FRONT PANEL
AUX
TUNER
PU
CD
CASS
HSP
RF PANEL
RF PART
TUN R
TUN L
SK-7 MONO
7325 TDA1520B
7326 TDA1520B
THERMAL PROTEC
CURRENT LIMITER
LIMITER FOR LED BAR
TO FRONT PANEL B431 L LED BAR
TO FRONT PANEL B432 R LED BAR
LEFT
RIGHT
HEADPHONE BU11
4Ω 1kHz 40W D ≤ 10%
240V (/05 ONLY)
220V
SK10 ON
MAINS INLET 220V 50Hz
THERMAL FUSE
Vsec 15 14 > 14.7V ∼
14 13 > 14.7V ∼
16 17 > 19V ∼
△ - NOT FOR /32/38
✱ - /32/38 ONLY
ALL RESISTORS UNLESS STATED OTHERWISE
EVM
Uprim | Winding | interc
110V | 4-2 | 1-3 2-5
127V | 4-6 | 1-3 2-5
220V | 4-5 | 1-2
240V | 4-6 | 1-2
PRS 02621
T12/725

1301	J16
1302	K16
1305	M16
1501	M17
2371	D 2
2372	H 2
2373	D 3
2374	H 3
2381	D 2
2382	H 2
2383	D 4
2384	G 4
2386	H 2
2387	E 2
2389	A 7
2390	K 7
2391	C 8
2392	H 8
2393	C 9
2394	I 9
2395	C10
2396	H10
2397	C 7
2398	I 7
2399	C10
2400	H10
2401	C13
2402	G13
2403	D13
2403	E12
2404	H13
2405	D14
2406	H14
2407	D14
2408	H14
2409	E13
2410	I 13
2411	F14
2412	J14
2413	B16
2414	F16
2415	E16
2416	I 16
2417	E15
2418	I 15
2419	D17
2420	H17
2423	E19
2424	F19
2425	C19
2426	G19
2430	N12
2431	J15
2432	L15
2433	K16
2434	K14
2435	L14
2436	M14
2437	N14
2438	M13
2439	N13
2440	M12
2441	N15
2442	M16
2443	M16
2452	M12
2455	M12
2459	A 6
2460	K 6
2461	D 6
2462	H 6
2463	C 6
2464	I 6
2465	B10
2466	H10
2471	D17
2472	H17
2477	F 6
3203	J 8
3204	B 8
3417	C 6
3418	I 6
3419	A 7
3420	K 7
3421	A 6
3422	K 6
3423	D 7
3424	G 7
3425	D 1
3426	H 1
3427	A 6
3428	K 6
3429	D 2
3430	G 2
3431	D 3
3432	G 3
3433	C 3
3434	G 3
3435	D 4
3436	G 4
3439	C 7
3440	H 7
3441	C 9
3442	H 9
•3443	C 9
3444	H 9
3445	B10
3446	G10
3447	G13
3449	C12
3450	G12
3451	D13
3452	H13
3453	D14
3454	H14
3455	D13
3456	H13
3457	F14
3458	J14
3459	E14
3460	I 14
3461	E15
3462	I 15
3463	D17
3464	H17
3465	D18
3466	F18
3467	D18
3468	E18
3471	M12
3472	N13
3473	N13
3474	M14
3480	F 7
3481	B17
3482	I 17
3483	C18
3484	I 18
3485	C 6
3486	H 6
3487	L12
3495	F14
5001	J17
5301	M 9
6350	K15
6355	N13
6359	M15
6360	M15
6365	C17
6366	J17
6367	C18
6368	J18
6371	M15
6372	M15
7321	C10
7322	H10
7325	B15
7326	F15
7327	M13
7331	D12
7332	G12
7334	F13
7337	D 3
7338	H 3
BU-2	L18
BU-3	C20
BU-4	H20
BU-5	A 5
BU-6	K 5
BU-7	C 5
BU-8	H 5
BU10	E 6
BU11	D19
SK-1	C 8
SK-1	I 8
SK-1	L 3
SK-2	L 3
SK-2	B 7
SK-2	J 7
SK-3	M 3
SK-3	D 8
SK-3	H 8
SK-4	A 8
SK-4	M 3
SK-4	K 8
SK-5	N 3
SK-5	C 8
SK-5	I 8
SK-7	M 9
SK10	K18

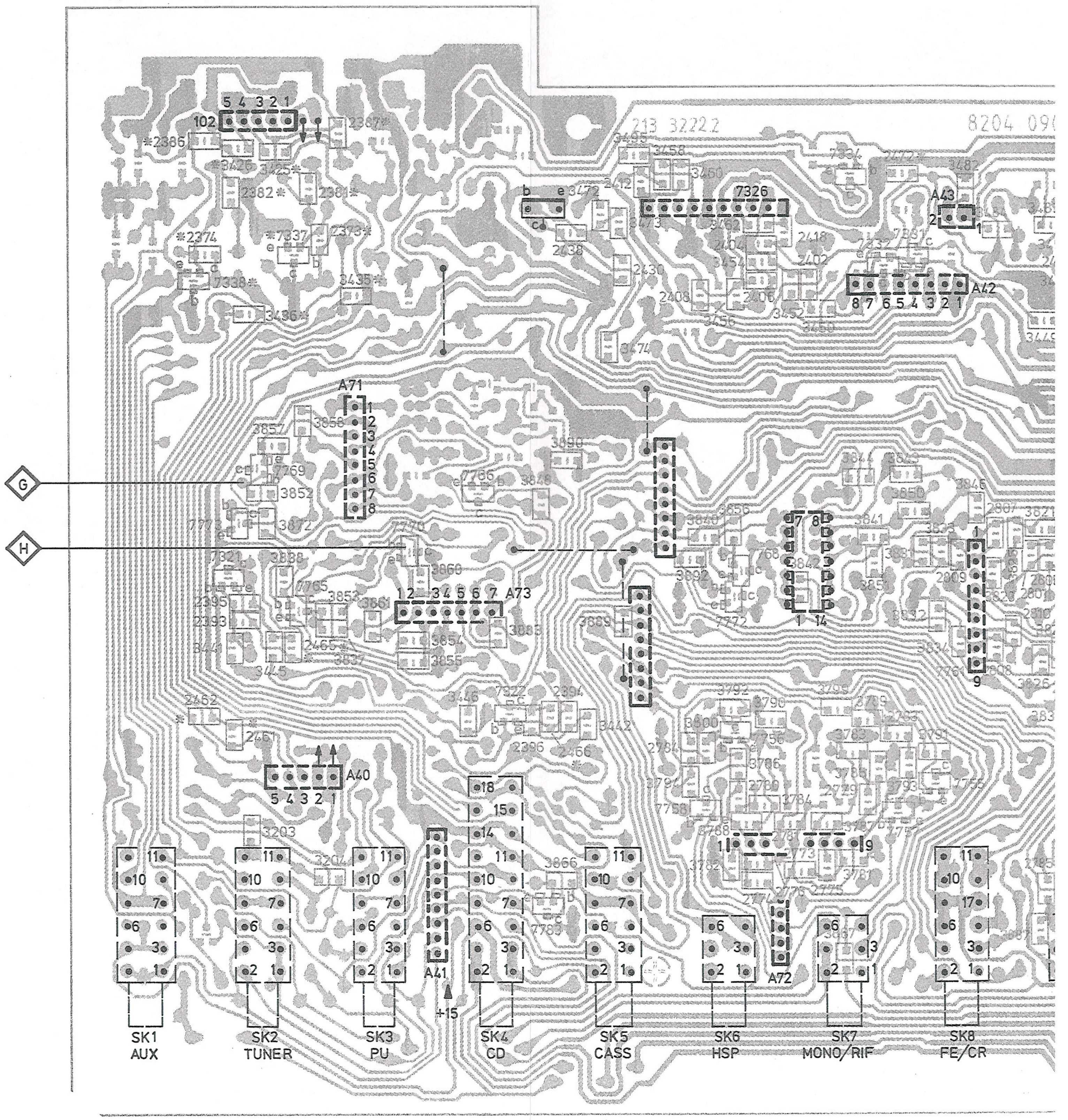
HEADPHONE PANEL


TO A100.
A200.
2477*
3480*
3474
2423
A201.
TO A101.
BU 10
MIC
BU 11
HEADPHONE

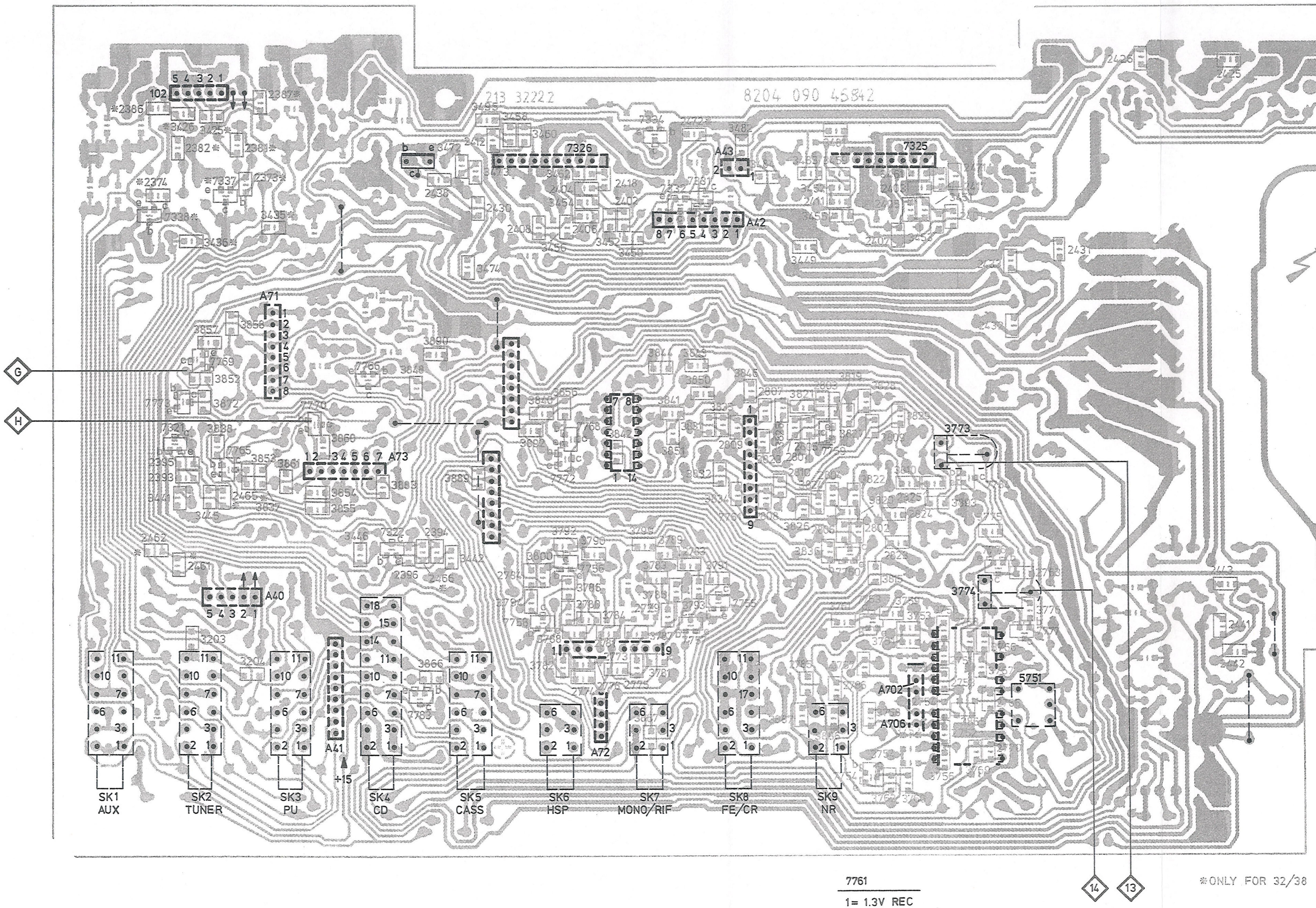
*ONLY FOR /32/38

42136 A 12

MAIN PANEL


213 3222 2
8204 090
102
A71
A73
A40
A41
A42
A43
A72
7326
G
H
+15
SK1
AUX
SK2
TUNER
SK3
PU
SK4
CD
SK5
CASS
SK6
HSP
SK7
MONO/RIF
SK8
FE/CR

MAIN PANEL


102
5 4 3 2 1
213 32222
8204 090 45842
7326
7325
A43
A42
8 7 6 5 4 3 2 1
A71
A73
1 2 3 4 5 6 7
A40
5 4 3 2 1
A41
A72
A702
A706
5751
3773
3774
G
H
14
13
+15
SK1
AUX
SK2
TUNER
SK3
PU
SK4
CD
SK5
CASS
SK6
HSP
SK7
MONO/RIF
SK8
FE/CR
SK9
NR

42 447 D

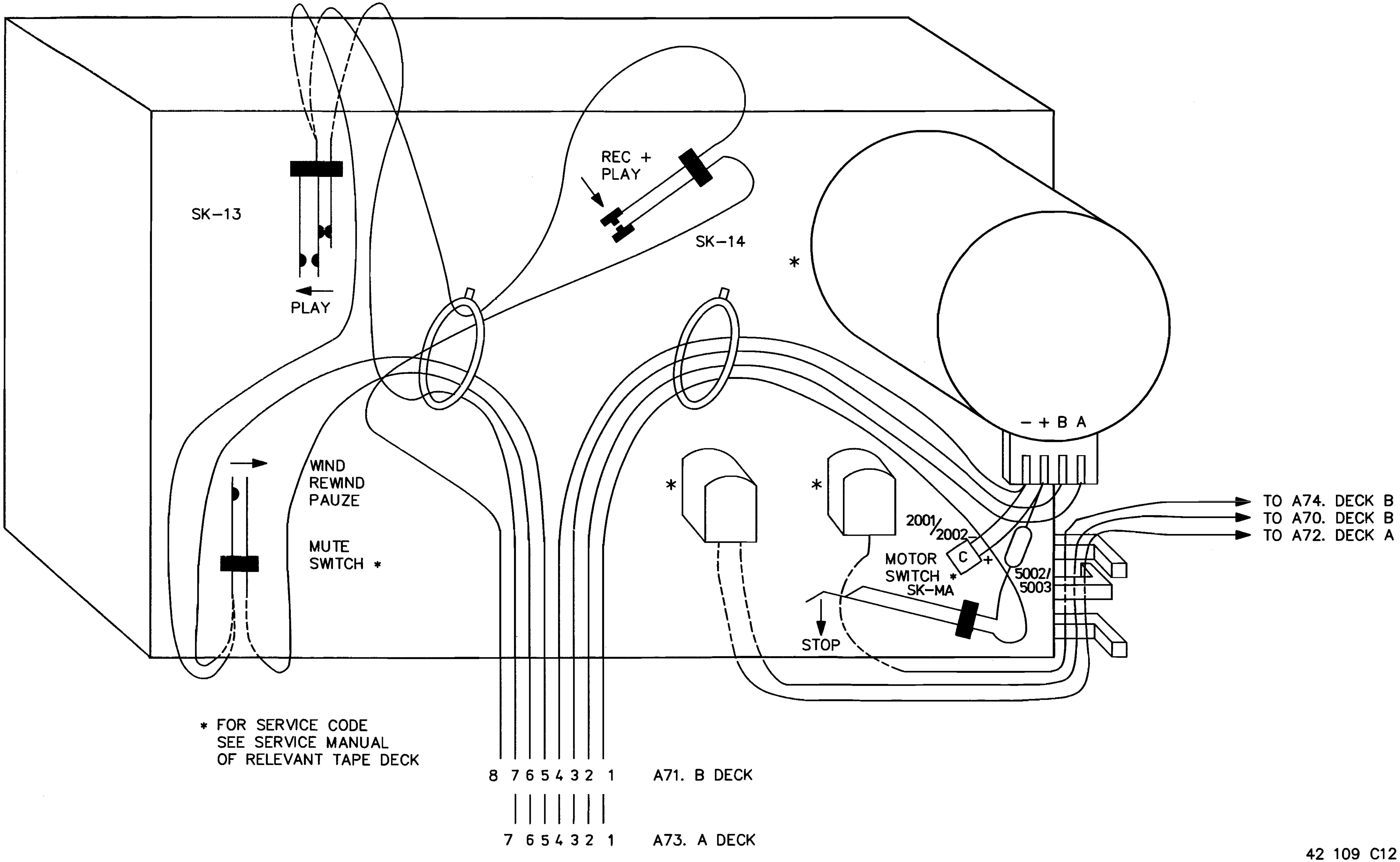
*ONLY FOR 32/38

7761

1= 1.3V REC
2= ~
3= 4 V REC
4= ALC−0.2 0.9V
5= ⊥
6= 8.7V REC
7= 4 V REC
8= ~
9= 1.3V REC

TAPE DECK

REC SWITCH ONLY FOR B DECK


SK-13
PLAY
REC +
PLAY
SK-14
*
WIND
REWIND
PAUZE
MUTE
SWITCH *
- + B A
*
*
2001/2002
C
+
MOTOR
SWITCH *
SK-MA
5002/
5003
STOP
TO A74. DECK B
TO A70. DECK B
TO A72. DECK A
8 7 6 5 4 3 2 1 A71. B DECK
7 6 5 4 3 2 1 A73. A DECK

* FOR SERVICE CODE
SEE SERVICE MANUAL
OF RELEVANT TAPE DECK

42 109 C12

(GB)
WARNING

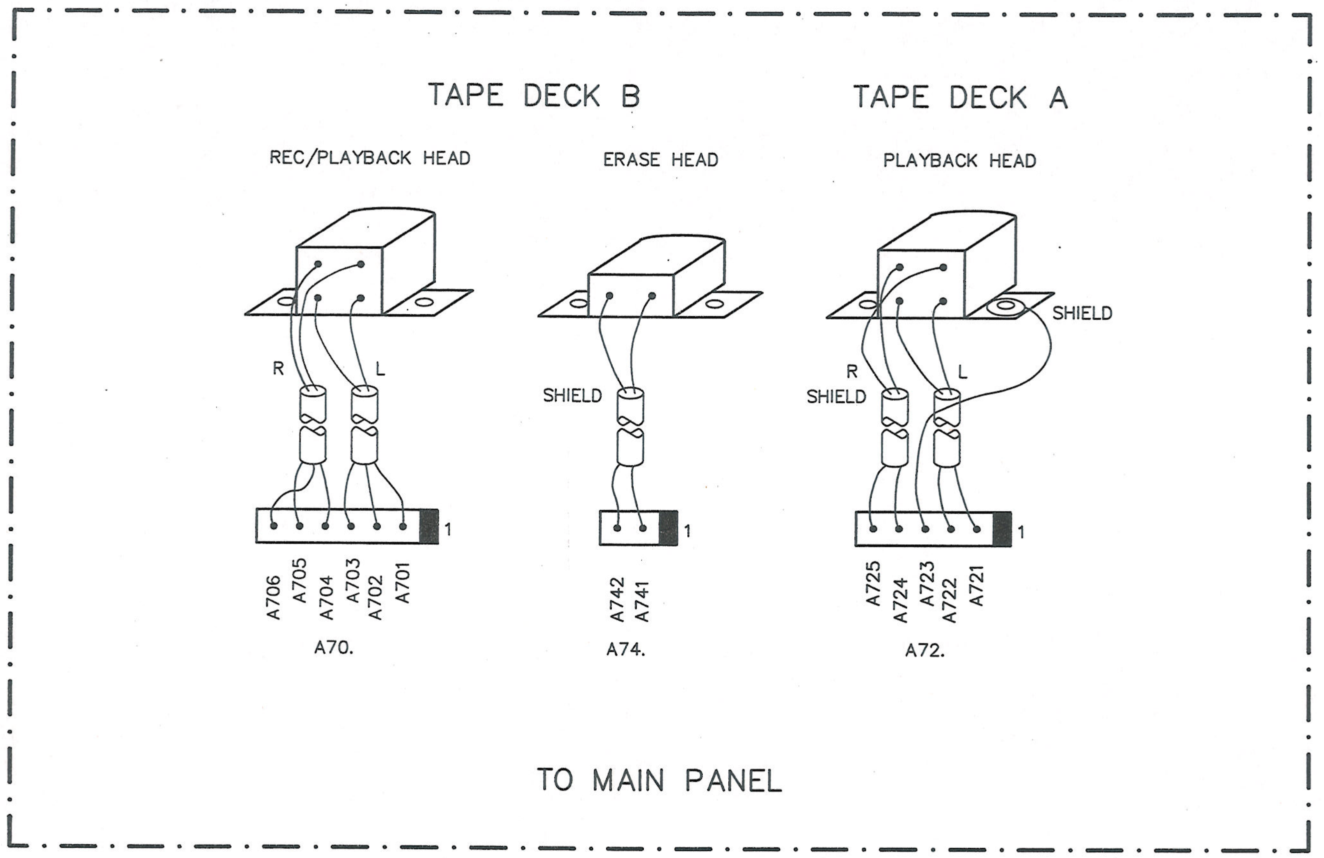
ESD

All ICs and m
susceptible t
Careless han
drastically.
When repairi
with the sam
wrist wrap w
Keep compo

(F)
ATTENTION

ESD

Tous les IC e
sont sensible
Leur longévit
écourtée par
leur manipul
Lors de répa
même poten
bracelet sert
Veiller à ce q
que l'on utili


TAPE DECK B
TAPE DECK A
REC/PLAYBACK HEAD
ERASE HEAD
PLAYBACK HEAD
R
L
SHIELD
SHIELD
R
L
SHIELD
1
1
1
A706
A705
A704
A703
A702
A701
A742
A741
A725
A724
A723
A722
A721
A70.
A74.
A72.
TO MAIN PANEL

42 108 C12

MAIN PANEL

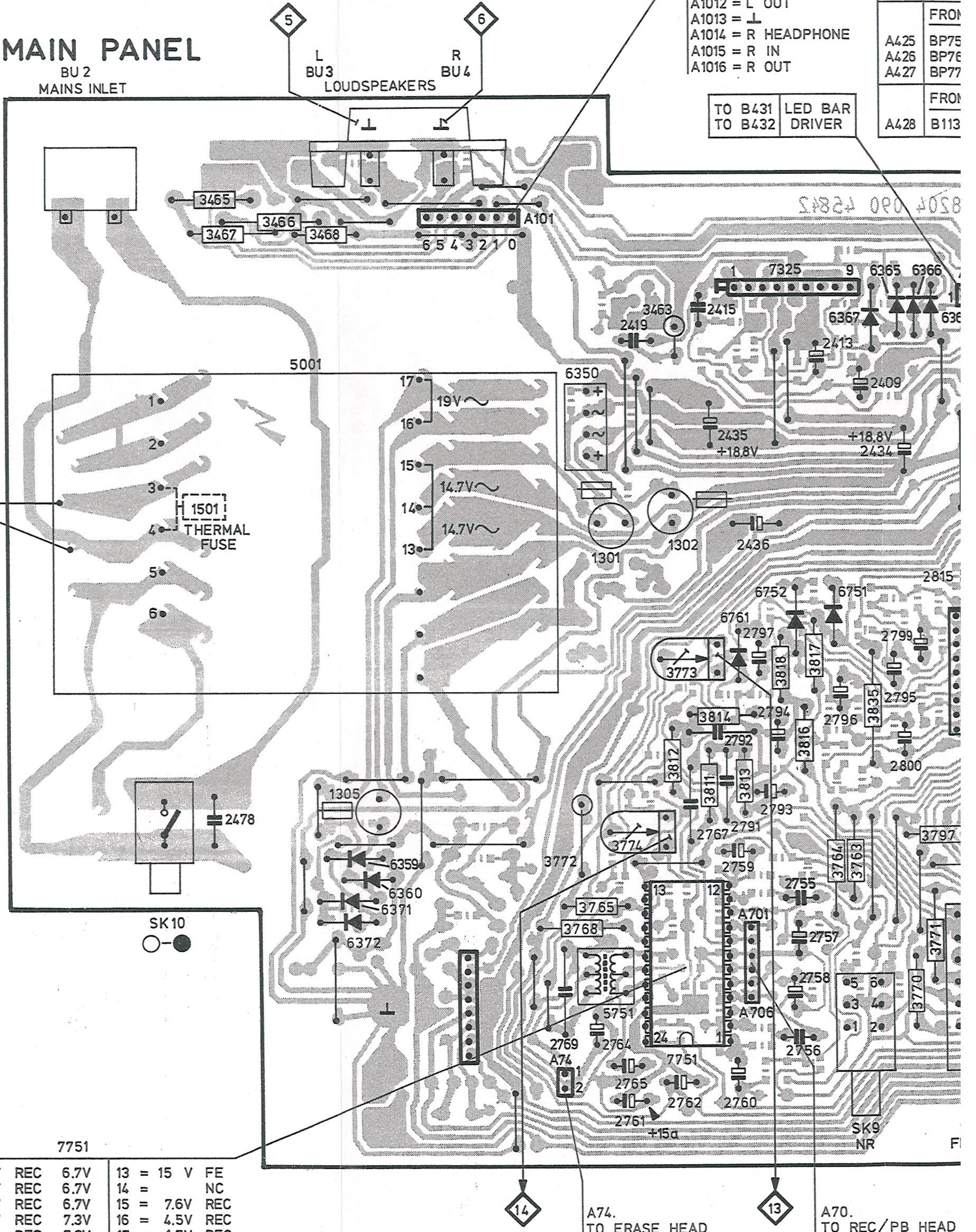
BU-A201.
TO HEADPHONE PANEL

A1010 = L HEADPHONE
A1011 = L IN
A1012 = L OUT
A1013 = ⊥
A1014 = R HEADPHONE
A1015 = R IN
A1016 = R OUT

TO B431 TO B432	LED BAR DRIVER

A42.

	TO F
A421 A422 A423 A424	B421 B422 B423 B424
	FRON
A425 A426 A427	BP75 BP76 BP77
	FRON
A428	B113


5
6
L
BU3
R
BU4
LOUDSPEAKERS
BU 2
MAINS INLET
3465
3466
3467
3468
6 5 4 3 2 1 0
A101
8204 090 45842
7325
1
9
6365
6366
6367
3463
2415
2419
2413
2409
5001
6350
17
16
15
14
13
19V~
14.7V~
14.7V~
1
2
3
4
5
6
1501
THERMAL FUSE
2435
+18.8V
+18.8V
2434
1301
1302
2436
2815
6752
6751
6761
2797
2799
3773
3818
3817
3835
2795
2796
3814
2794
2792
3816
2800
3812
3811
3813
2793
2791
2767
2759
3797
3764
3763
1305
2478
6359
6360
6371
6372
SK10
3772
3774
3765
3768
13
12
A701
2755
2757
2758
3771
3770
5751
A706
2769
A74
2764
7751
2756
2765
2762
2760
2761
+15a
24
SK9
NR
FI
14
13

SOLDERING POINTS WHEN REPLACING THERMAL FUSE

MAINS	WINDING	INTERCONNECT	
110V	4-2	1-3	2-5
127V	4-6	1-3	2-5
220V	4-5	1-2	
240V	4-6	1-2	

7751

1 = 5.5V REC 6.7V
2 = 5.5V REC 6.7V
3 = 5.8V REC 6.7V
4 = 6.3V REC 7.3V
5 = 6.3V REC 7.3V
6 = V REF = 7.4V
7 = V REF = 7.4V
8 = 6.5V REC 7.3V
9 = 6.5V REC 7.3V
10 = ~
11 = 5.5V REC
12 = ~
13 = 15 V FE
14 = NC
15 = 7.6V REC
16 = 4.5V REC
17 = 1.7V REC
18 = ~
19 = 15 V
20 = ~
21 = 13 V
22 = 7.4 V
23 = 12.1 V REC
24 = ⊥

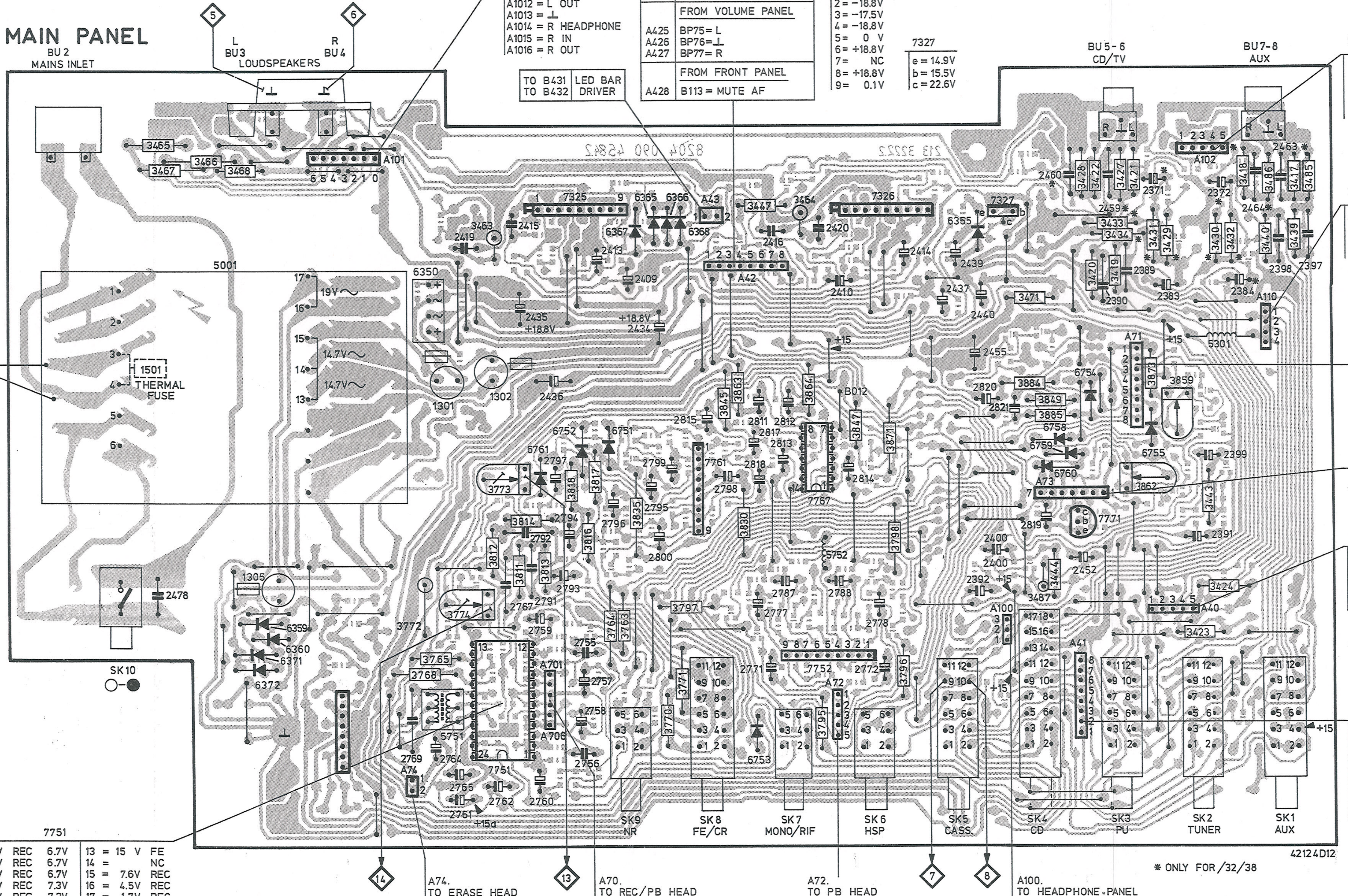
A74.
TO ERASE HEAD
TAPEDECK B

A70.
TO REC/PB HEAD
TAPE DECK B

A701 = L→
A702 = REC L
A703 = V REF
A704 = V REF
A705 = REC R
A706 R→

108 C12

MAIN PANEL


BU 2
MAINS INLET
L
R
BU3
BU4
LOUDSPEAKERS
5
6
BU 5-6
CD/TV
BU7-8
AUX
A101
A102
A42
A43
A110
A71
A73
A40
A41
A100
A72
A701
A706
A74
7325
7326
7327
7751
7752
7761
7767
7771
5001
6350
1501
THERMAL
FUSE
1301
1302
1305
5301
5751
5752
19V~
14.7V~
14.7V~
+18.8V
+15
+15a
SK10
SK9
NR
SK 8
FE/CR
SK 7
MONO/RIF
SK 6
HSP
SK5
CASS.
SK4
CD
SK3
PU
SK2
TUNER
SK1
AUX
14
13
7
8
8204 090 45842
213 32222
42124D12

BU-A201.
TO HEADPHONE PANEL

A1010 = L HEADPHONE
A1011 = L IN
A1012 = L OUT
A1013 = ⊥
A1014 = R HEADPHONE
A1015 = R IN
A1016 = R OUT

TO B431 TO B432	LED BAR DRIVER

A42.

	TO FRONT PANEL
A421 A422 A423 A424	B421 = L B422 = ⊥ B423 = R B424 = +15 TO EQUALIZER PART
	FROM VOLUME PANEL
A425 A426 A427	BP75 = L BP76 = ⊥ BP77 = R
	FROM FRONT PANEL
A428	B113 = MUTE AF

7325/7326

1 = 0.1V
2 = −18.8V
3 = −17.5V
4 = −18.8V
5 = 0 V
6 = +18.8V
7 = NC
8 = +18.8V
9 = 0.1V

7327

e = 14.9V
b = 15.5V
c = 22.6V

A102.
TO RECORD PLAYER /32/38.

1021 − TO A401 = +M(14.9V)
1022 − TO A402 = ⊥
1023 = ⊥
1024 = L
1025 = R

A110.
TO RF PANEL.

A1101− A2101 = TUN R
A1102− A2102 = ⊥
A1103− A2103 = TUN L
A1104− A2104 = +15V

SOLDERING POINTS WHEN REPLACING THERMAL FUSE

MAINS	WINDING	INTERCONNECT	
110V	4−2	1−3	2−5
127V	4−6	1−3	2−5
220V	4−5	1−2	
240V	4−6	1−2	

A71.
FROM MOTOR PART
RECORDER A.

A73.
FROM MOTOR PART
RECORDER B.

A40.
TO RECORD PLAYER /30/35.

A401 = +M (14.9V)
A402 = ⊥
A403 = ⊥
A404 = L
A405 = R

A41.
TO FRONT PANEL B41.
LED INDICATORS

A411 = AUX
A412 = TUNER
A413 = CASS.
A414 = CD
A415 = HSP
A416 = PU
A417 = ⊥
A418 = TUN

7751

1 = 5.5V REC 6.7V
2 = 5.5V REC 6.7V
3 = 5.8V REC 6.7V
4 = 6.3V REC 7.3V
5 = 6.3V REC 7.3V
6 = V REF = 7.4V
7 = V REF = 7.4V
8 = 6.5V REC 7.3V
9 = 6.5V REC 7.3V
10 = ~
11 = 5.5V REC
12 = ~
13 = 15 V FE
14 = NC
15 = 7.6V REC
16 = 4.5V REC
17 = 1.7V REC
18 = ~
19 = 15 V
20 = ~
21 = 13 V
22 = 7.4V
23 = 12.1V REC
24 = ⊥

A74.
TO ERASE HEAD
TAPEDECK B

A70.
TO REC/PB HEAD
TAPE DECK B

A701 = L→
A702 = REC L
A703 = V REF
A704 = V REF
A705 = REC R
A706 R→

A72.
TO PB HEAD
TAPE DECK A

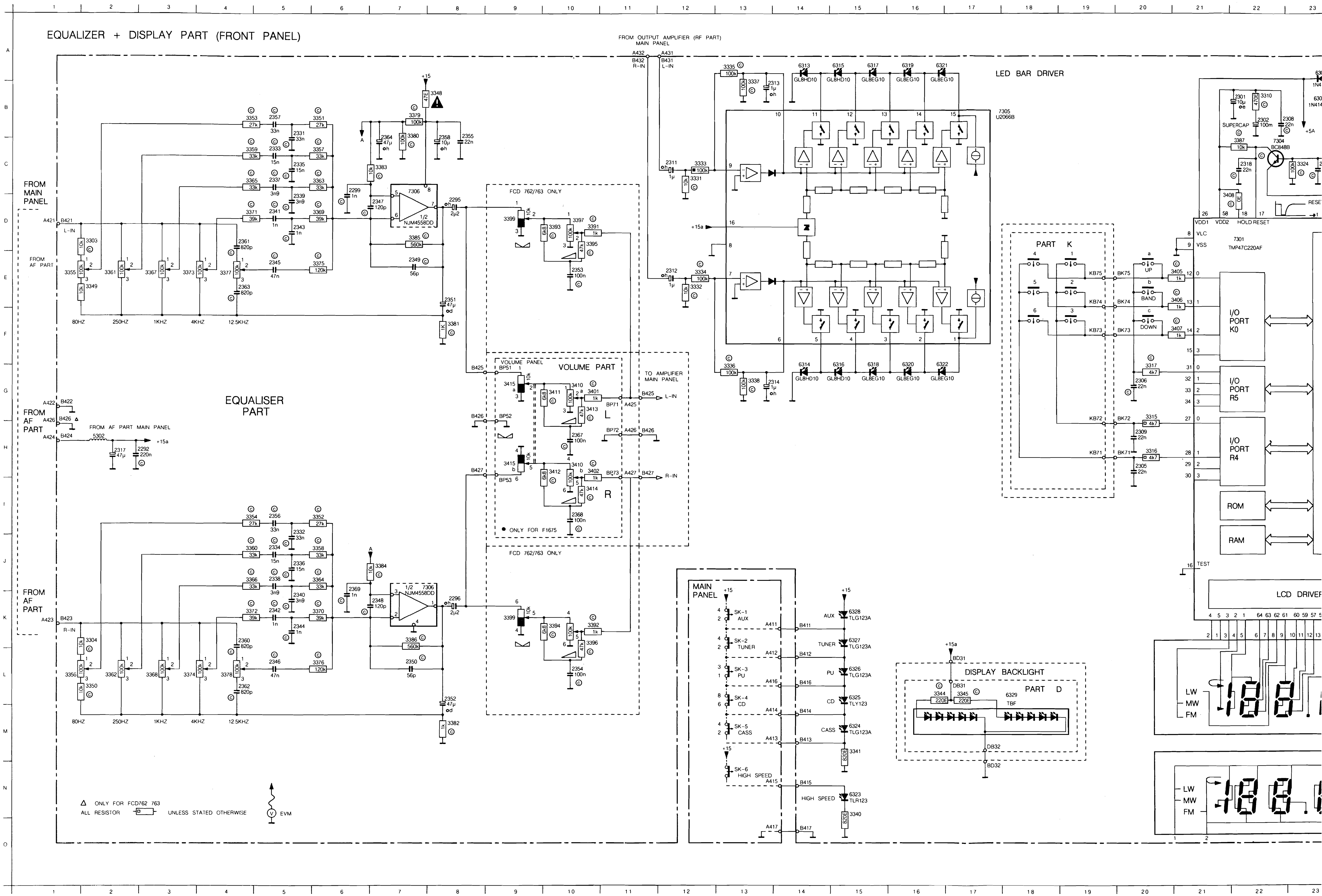
A721 = ⊥
A722 = L→
A723 = ⊥
A724 = R→
A725 = ⊥

A100.
TO HEADPHONE PANEL
BU-10 MICROPH.

A1001− B2001 = L
A1002− B2002 = ⊥
A1003− B2003 = R

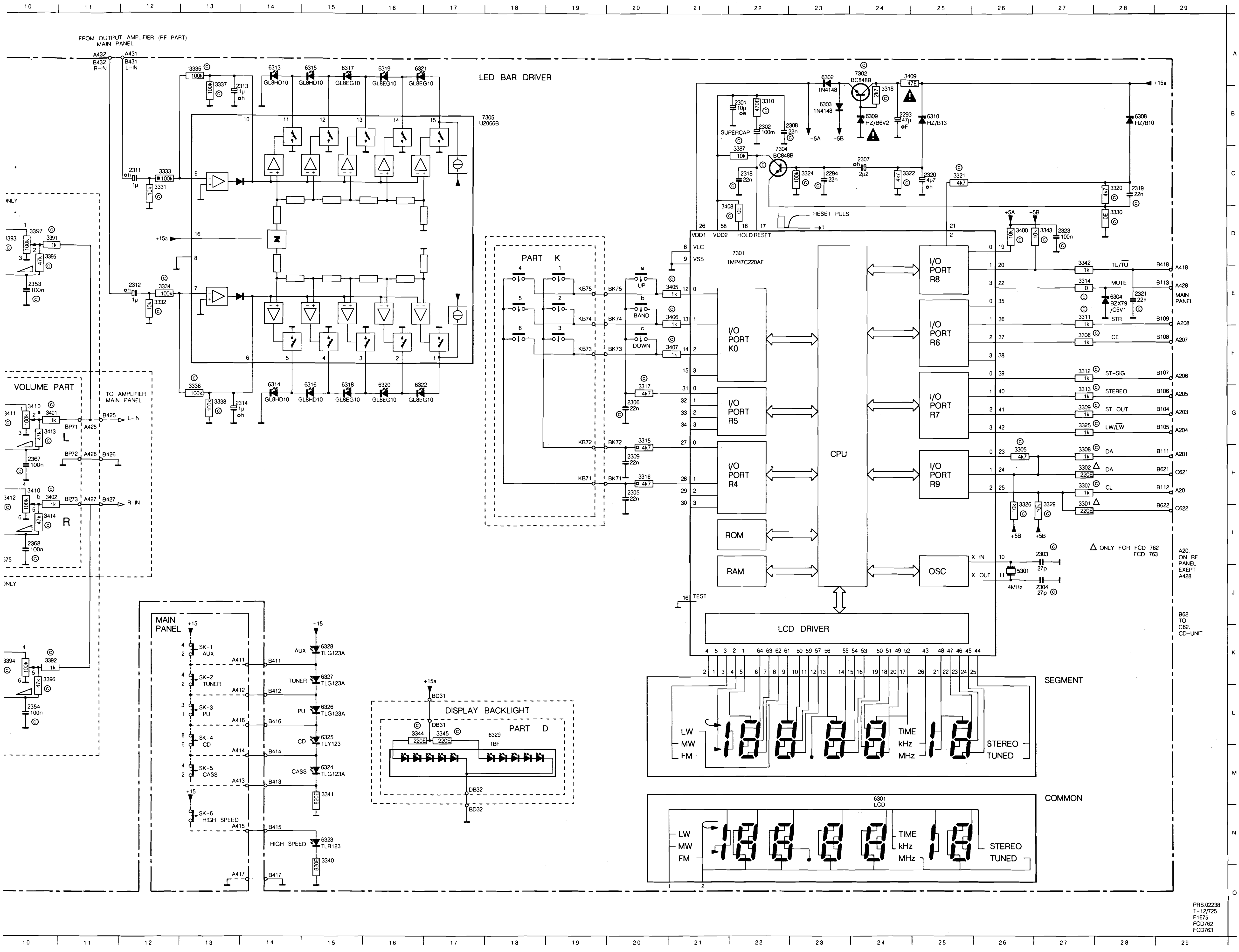
✱ ONLY FOR /32/38

EQUALIZER + DISPLAY PART (FRONT PANEL)

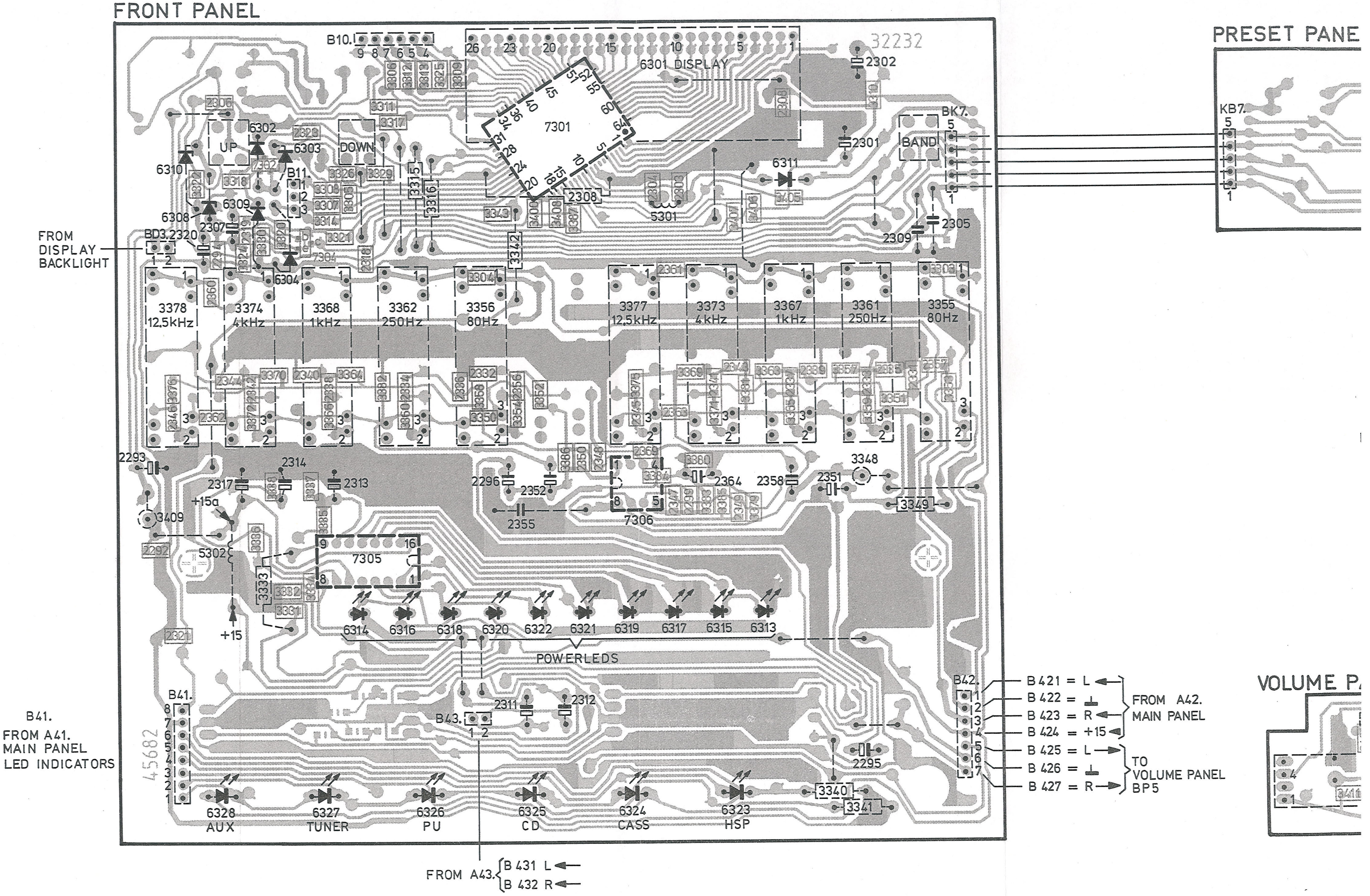

FROM OUTPUT AMPLIFIER (RF PART) MAIN PANEL
LED BAR DRIVER
7305 U2066B
FROM MAIN PANEL
FROM AF PART
L-IN
R-IN
EQUALISER PART
FROM AF PART MAIN PANEL
+15a
7306 NJM4558DD
80HZ
250HZ
1KHZ
4KHZ
12.5KHZ
FCD 762/763 ONLY
VOLUME PANEL
VOLUME PART
TO AMPLIFIER MAIN PANEL
L
R
ONLY FOR F1675
PART K
UP
BAND
DOWN
7301 TMP47C220AF
I/O PORT K0
I/O PORT R5
I/O PORT R4
ROM
RAM
TEST
LCD DRIVER
HOLD RESET
SUPERCAP
7304 BC848B
MAIN PANEL
SK-1 AUX
SK-2 TUNER
SK-3 PU
SK-4 CD
SK-5 CASS
SK-6 HIGH SPEED
AUX
TUNER
PU
CD
CASS
HIGH SPEED
DISPLAY BACKLIGHT
PART D
LW
MW
FM
EVM

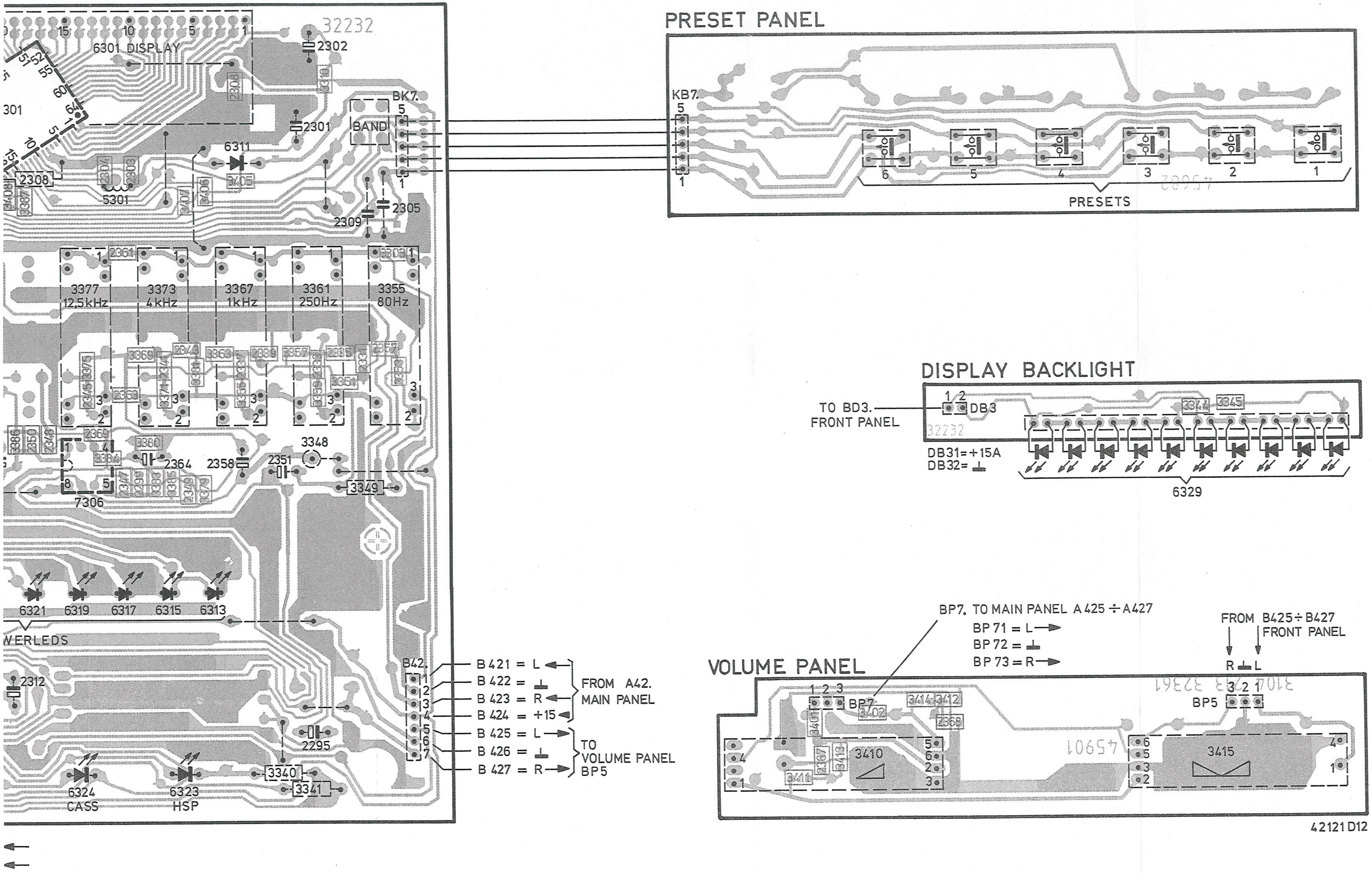
△ ONLY FOR FCD762 763

ALL RESISTOR UNLESS STATED OTHERWISE


FROM OUTPUT AMPLIFIER (RF PART) MAIN PANEL
A432 B432 R-IN
A431 B431 L-IN
LED BAR DRIVER
7305 U2066B
6313 6315 6317 6319 6321
6314 6316 6318 6320 6322
GL8HD10 GL8EG10
+15a
VOLUME PART
TO AMPLIFIER MAIN PANEL
L-IN
R-IN
L
R
PART K
UP
BAND
DOWN
KB75 KB74 KB73 KB72 KB71
BK75 BK74 BK73 BK72 BK71
7301 TMP47C220AF
VDD1 VDD2 HOLD RESET
VLC VSS
RESET PULS
SUPERCAP
7302 BC848B
7304 BC848B
I/O PORT K0
I/O PORT R5
I/O PORT R4
I/O PORT R8
I/O PORT R6
I/O PORT R7
I/O PORT R9
CPU
ROM
RAM
OSC
LCD DRIVER
TEST
X IN
X OUT
4MHz
TV/TU
MUTE
STR
CE
ST-SIG
STEREO
ST OUT
LW/LW
DA
CL
MAIN PANEL
△ ONLY FOR FCD 762 FCD 763
A20 ON RF PANEL EXEPT A428
B62 TO C62 CD-UNIT
MAIN PANEL
SK-1 AUX
SK-2 TUNER
SK-3 PU
SK-4 CD
SK-5 CASS
SK-6 HIGH SPEED
AUX
TUNER
PU
CD
CASS
HIGH SPEED
6328 TLG123A
6327 TLG123A
6326 TLG123A
6325 TLY123
6324 TLG123A
6323 TLR123
DISPLAY BACKLIGHT
PART D
6329 TBF
SEGMENT
COMMON
6301 LCD
LW MW FM
TIME kHz MHz
STEREO TUNED
PRS 02238
T-12/725
F1675
FCD762
FCD763

2292	H 3
2293	B24
2294	C23
2295	D 8
2296	K 8
2299	C 6
2301	B22
2302	B22
2303	I 27
2304	J27
2305	H20
2306	G20
2307	C24
2308	B23
2309	H20
2311	C12
2312	E12
2313	B14
2314	G14
2317	H 2
2318	C22
2319	C28
2320	C25
2321	E28
2323	D27
2331	B 5
2332	I 5
2333	C 5
2334	J 5
2335	C 5
2336	J 5
2337	C 5
2338	J 5
2339	D 5
2340	K 5
2341	D 5
2342	K 5
2343	D 5
2344	K 5
2345	E 5
2346	L 5
2347	D 7
2348	K 7
2349	E 7
2350	L 7
2351	E 8
2352	L 8
2353	E10
2354	L10
2355	B 8
2356	I 5
2357	B 5
2358	B 8
2360	K 4
2361	D 4
2362	L 4
2363	E 4
2364	B 7
2367	H10
2368	I 10
2369	J 6
3301	H27
3302	H27
3303	D 2
3304	K 2
3305	H26
3306	F27
3307	H27
3308	H27
3309	G27
3310	B22
3311	E27
3312	F27
3313	G27
3314	E27
3315	G20
3316	H20
3317	G20
3318	B24
3320	C28
3321	C25
3322	C25
3324	C23
3325	G27
3326	H26
3329	H27
3330	D28
3331	C12
3332	E12
3333	C12
3334	E12
3335	A13
3336	G13
3337	A13
3338	G13
3340	N15
3341	M15
3342	D27
3343	D27
3344	L16
3345	L17
3348	B 8
3349	E 2
3350	L 2
3351	B 6
3352	I 6
3353	B 4
3354	I 4
3355	E 1
3356	L 1
3357	C 6
3358	J 6
3359	C 4
3360	J 4
3361	E 2
3362	L 2
3363	C 6
3364	J 6
3365	C 4
3366	J 4
3367	E 3
3368	L 3
3369	D 6
3370	K 6
3371	D 4
3372	K 4
3373	E 3
3374	L 3
3375	E 6
3376	L 6
3377	E 4
3378	L 4
3379	B 7
3380	B 7
3381	F 8
3382	M 8
3383	C 7
3384	J 7
3385	D 7
3386	K 7
3387	C22
3391	D10
3392	K10
3393	D10
3394	K10
3395	D10
3396	K10
3397	D10
3399	K 9
3399	D 9
3400	D26
3401	G10
3402	H10
3405	E21
3406	E21
3407	F21
3408	D22
3409	A24
3410	G10
3410	H10
3411	G10
3412	H10
3413	G10
3414	I 10
3415	G 9
3415	H 9
5301	J26
5302	H 2
6301	M24
6302	A23
6303	B23
6304	E28
6308	B28
6309	B24
6310	B25
6313	A14
6314	F14
6315	A15
6316	F15
6317	A15
6318	F15
6319	A16
6320	F16
6321	A16
6322	F16
6323	N15
6324	M15
6325	L15
6326	L15
6327	K15
6328	K15
6329	L18
7301	D22
7302	A24
7304	C22
7305	B18
7306	C 7
7306	J 8
SK-1	K13
SK-2	K13
SK-3	L13
SK-4	L13
SK-5	M13
SK-6	N13


FRONT PANEL
PRESET PANE
VOLUME P
32232
45682
B10.
9 8 7 6 5 4
26 23 20 15 10 5 1
6301 DISPLAY
7301
2302
2301
BAND
BK7.
KB7.
6311
5301
2308
2309
2305
UP
DOWN
6302
6303
6310
6309
6308
B11
6304
7304
2307
FROM
DISPLAY
BACKLIGHT
BD3.2320
3378
12,5kHz
3374
4kHz
3368
1kHz
3362
250Hz
3356
80Hz
3377
12,5kHz
3373
4kHz
3367
1kHz
3361
250Hz
3355
80Hz
2293
2317
2314
2313
+15a
3409
5302
7305
+15
2296
2352
2355
7306
2364
2358
2351
3348
3349
6314
6316
6318
6320
6322
6321
6319
6317
6315
6313
POWERLEDS
2311
2312
B43.
B41.
B41.
FROM A41.
MAIN PANEL
LED INDICATORS
6328
AUX
6327
TUNER
6326
PU
6325
CD
6324
CASS
6323
HSP
3340
3341
2295
B42.
B 421 = L
B 422 = ⊥
B 423 = R
B 424 = +15
FROM A42.
MAIN PANEL
B 425 = L
B 426 = ⊥
B 427 = R
TO
VOLUME PANEL
BP5
FROM A43.
B 431 L
B 432 R


6301 DISPLAY
32232
2302
2301
2308
5301
6311
BK7.
BAND
2309
2305
3377
12,5kHz
3373
4kHz
3367
1kHz
3361
250Hz
3355
80Hz
7306
3348
2364
2358
2351
3349
6321
6319
6317
6315
6313
WERLEDS
2312
2295
3340
3341
6324
CASS
6323
HSP
B42.
B 421 = L
B 422 = ⊥
B 423 = R
B 424 = +15
FROM A42.
MAIN PANEL
B 425 = L
B 426 = ⊥
B 427 = R
TO
VOLUME PANEL
BP5
PRESET PANEL
KB7.
PRESETS
DISPLAY BACKLIGHT
TO BD3.
FRONT PANEL
DB3
DB31 = +15A
DB32 = ⊥
3344
3345
6329
VOLUME PANEL
BP7. TO MAIN PANEL A 425 ÷ A427
BP 71 = L
BP 72 = ⊥
BP 73 = R
FROM B425 ÷ B427
FRONT PANEL
R ⊥ L
BP5
BP7
3410
3415
3414
3412
3402
2368
3401
2367
3413
3411
42121 D12

ELECTRICAL ADJUSTMENTS AND CHECKS TUNER PART

General

- For the HF adjustments, the injected signals should be kept as small as possible.
- The IF adjustment is done with a wobbulated signal. For FM this is 98 MHz with a sweep of 250 kHz in a frequency of 50 Hz. For AM this is 450 kHz with a sweep of 10 kHz in a frequency of 50 Hz.
- If the self–routine is started, fixed frequencies are stored in various presets (RAM LOADING). In normal application these can be used for adjustments.

Measuring equipment used

- Power–supply equipment
- Oscilloscope
- DC millivoltmeter
- AC millivoltmeter
- Frequency counter
- Distortion meter

ELUCIDATIONS

[1] Place the top of the response curve in the centre of the screen by displacing the wobbulating frequency.

[2] Adjust for maximum height and symmetry.

[3] Adjust for minimum THD distortion on the distortion meter.

[A] To make the response curve visible, one should use the detector circuit.

[B] Connect the frequency counter via a 1 MΩ resistance.

[C] Tune the tuner to 99.0 MHz. Press tuning DOWN. Automatic search should stop at 98.0 MHz.

[D] Switch off the oscillator by short–circuiting pins 3 and 4 of 5111.

[E] Switch AGC off by short–circuiting electrolytic capacitor 2122.

[F] Interrupt loop AM and apply an external ripple–free 9 V DC tuning voltage to the cathode of 6106 or 6107 via 100 kΩ. Furthermore, switch a dummy capacitance of 478 pF, ± 1%, in parallel with 6107.

SERVICING HINTS

1. As MOS ICs are generally very sensitive to overload and too high voltages, utmost care should be exercised during the measurements. For further instructions, see the information leaflet in the package of the ICs.

2. Display 6301

The outputs of the display drivers are not protected against external overvoltages! When testing the display with external voltages, you should interrupt the connections with 7301.

3. Ceramic resonators 5106a, b and c

When replacing one of the ceramic resonators, take care that the colour codes of all three resonators are the same.
Furthermore, the right version in the right place is important.

5106 a = S version
b = J version
c = G version

4. ESD ⚠

All ICs and many other semi–conductors are sensitive to electrostatic discharges (ESD).
Careless treatment during repairs may drastically reduce life.
When repairing, make sure that you are connected, via a wristlet, to the same potential as the chassis of the set.
Keep components and tools at this potential as well.
See Service Information A86–1000 for this.

Programming

a. Tune automatically or manually to the frequency of the transmitter to be programmed. If the display next to the frequency does not indicate a memory position number, then the frequency in question has not yet been programmed.

b. In this case press one of preset buttons **2**, e.g. '5'. Keep this button pressed in! (Fig. 1.2)

c. After approximately 3 seconds the indicator '-P-' will appear on the display in place of the frequency. When this indication disappears, the frequency will return to the display, followed by the memory position number (e.g. '5').
This frequency is now entered in the memory and the relevant preset button can be released.
Note:

- If a transmitter has been programmed at two places in the memory and if you tune in to the frequency of this transmitter, the lowest memory position will be indicated.
- During programming there is no sound. When the preset button is released, the sound returns.

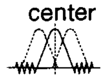
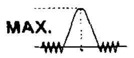
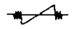
d. For each preset button **2** 1 FM frequency, 1 MW frequency and (if present) 1 LW frequency can be programmed.

e. A programmed frequency can only be erased from the memory by programming a new frequency in its place.

f. The memory information is lost if the unit is not switched on at least once per week. If this happens, the tuner must be reprogrammed.

SK... WAVE RANGE SWITCH	⊛→ SIGNAL	◇ TO	DISPLAY TUNE IN	REMARKS DETUNE	⌀ ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR

FM-IF/T.H.D.

Tuner SK-2 FM Wave range switch	98 MHz Δf 250 kHz (50 Hz)	◇A	Display 98.0 MHz	[A]	⊛	◇1 [1] center  fo	
	fo=f generator Δf 250 kHz (50 Hz)				5105	symmetrical  MAX. fo ◇1 [2]	
	98 MHz Δf 75 kHz 10 µV				no adjustment provided	symmetrical  ◇2	
	98 MHz Δf 75 kHz 1 kHz mod. 1 mV						◇3 0 V ± 30 mV
					3122		◇5 [3]

↕

FM-RF (oscillator)

Tuner SK-2 FM Wave range switch	108 MHz 1 kHz mod. Δf 75 kHz	◇A	Display 108 MHz		5104	max. ~ ◇7	

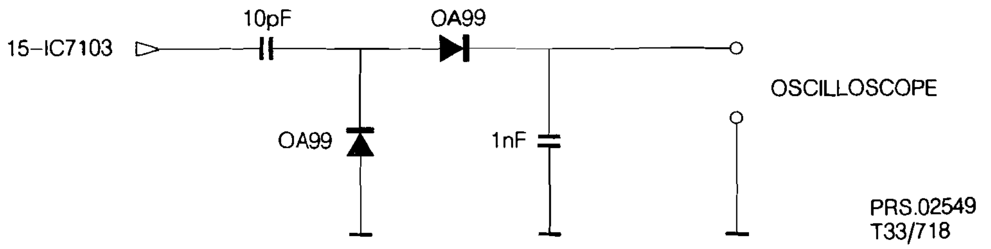
FM-RF

Tuner SK-2	108 MHz 1 kHz mod. Δf 75 kHz	◇A	Display 108 MHz		2109 2110 1) 2127	max. ~ ◇7	
FM Wave range switch	87.5 MHz 1 kHz mod. Δf 75 kHz		Display 87.5 MHz		5101 5102 5103 1)		

↕

1) Only for /32/38

↕Repeat



SK...
WAVE RAN
SWITCH

Stereo dec

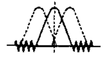
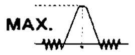
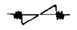
Tuner
SK-2
FM
Wave ran
switch
SK-7
stereo

FM stereo-

Tuner
SK-2
FM
Wave ran
switch

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR

FM-IF/T.H.D.

Tuner SK-2 FM Wave range switch	98 MHz △f 250 kHz (50 Hz)	◇A	Display 98.0 MHz	$\boxed{A}$	⊛	◇1 $\boxed{1}$ center  fo	
	fo=f generator △f 250 kHz (50 Hz)				5105	symmetrical  fo ◇1 $\boxed{2}$	
	98 MHz △f 75 kHz 10 µV				no adjustment provided	symmetrical  ◇2	
	98 MHz △f 75 kHz 1 kHz mod. 1 mV						◇3 0 V ± 30 mV
					3122		◇5 $\boxed{3}$

↕

FM-RF (oscillator)

Tuner SK-2 FM Wave range switch	108 MHz 1 kHz mod. △f 75 kHz	◇A	Display 108 MHz		5104	max. ~ ◇7	

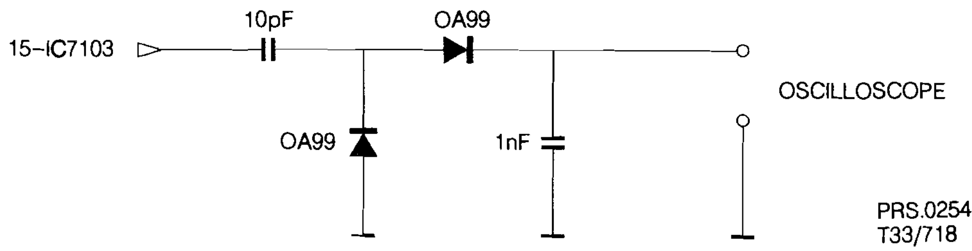
FM-RF

Tuner SK-2	108 MHz 1 kHz mod. △f 75 kHz	◇A	Display 108 MHz		2109 2110 1) 2127	max. ~ ◇7	
FM Wave range switch	87.5 MHz 1 kHz mod. △f 75 kHz		Display 87.5 MHz		5101 5102 5103 1)		

↕

1) Only for /32/38

↕Repeat



PRS.02549
T33/718

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR

Stereo decoder

Tuner SK-2 FM Wave range switch SK-7 stereo	98 MHz 1 mV unmodulated	◇A	Display 98.0 MHz	$\boxed{B}$	3155		◇6 Frequency counter 76 kHz ± 300 Hz

FM stereo-tuned indicator-tuning level - SEARCH STOP

Tuner SK-2 FM Wave range switch	98 MHz 1 kHz mod. 90% (L-R) 9% pilot 12 µV	◇A	Display 98.0 MHz		3123		6301 stereo on tuned on
	98 MHz 1 kHz mod. 90% (L-R) 9% pilot 3 µV				no adjustment provided		6301 stereo off tuned off
	98 MHz 1 kHz mod. 90% (L-R) 9% pilot 1 mV						6301 stereo on tuned on
	98 MHz 1 kHz mod. 1 mV 98 MHz ±35 kHz						6301 tuned on
	98 MHz 1 kHz mod. 90% (L-R) 9% pilot 30 µV		Display 99.0 MHz	$\boxed{C}$			

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR

AM-IF

Tuner SK-2 MW Wave range switch	450 kHz △f 10 kHz (50 Hz)	◇B		A D E	⊛	◇1 1 center fo	
	fo=f generator △f 10 kHz (50 Hz)				5109	symmetrical MAX. fo ◇1 2	
				D			

AM-RF (Oscillator)

Tuner SK-2 MW Wave range switch	522 MHz Mod.: 1 kHz 80%	◇B	Display 522 kHz	F	5111	max. ~ ◇7	
				F			

AM-RF

Tuner SK-2 MW Wave range switch	567 kHz 1 kHz Mod. 80%	◇A	Display 567 kHz		5115	max. ~ ◇7	
	1494 kHz 1 kHz Mod. 80%		Display 1494 kHz		2132		
Tuner 1) SK-2 LW Wave range switch	155 kHz 1 kHz Mod. 80%		Display 155 kHz		5115		
	254 kHz 1 kHz Mod. 80%		Display 254 kHz		2149		
				E			

AM tuned indicator/search stop

Tuner SK-2 MW Wave range switch	567 kHz 1 kHz Mod. 80% 2.2 mV	◇A	Display 567 kHz		no adjustment provided		6301 tuned on
	567 kHz 1 kHz mod. 80% 0,2 mV						6301 tuned off

↕Repeat - Herhalen - Répéter - Wiederholen - Ricomminciare - Repetera - Gentage - Gjentagelse - Toista

1) Not for /38

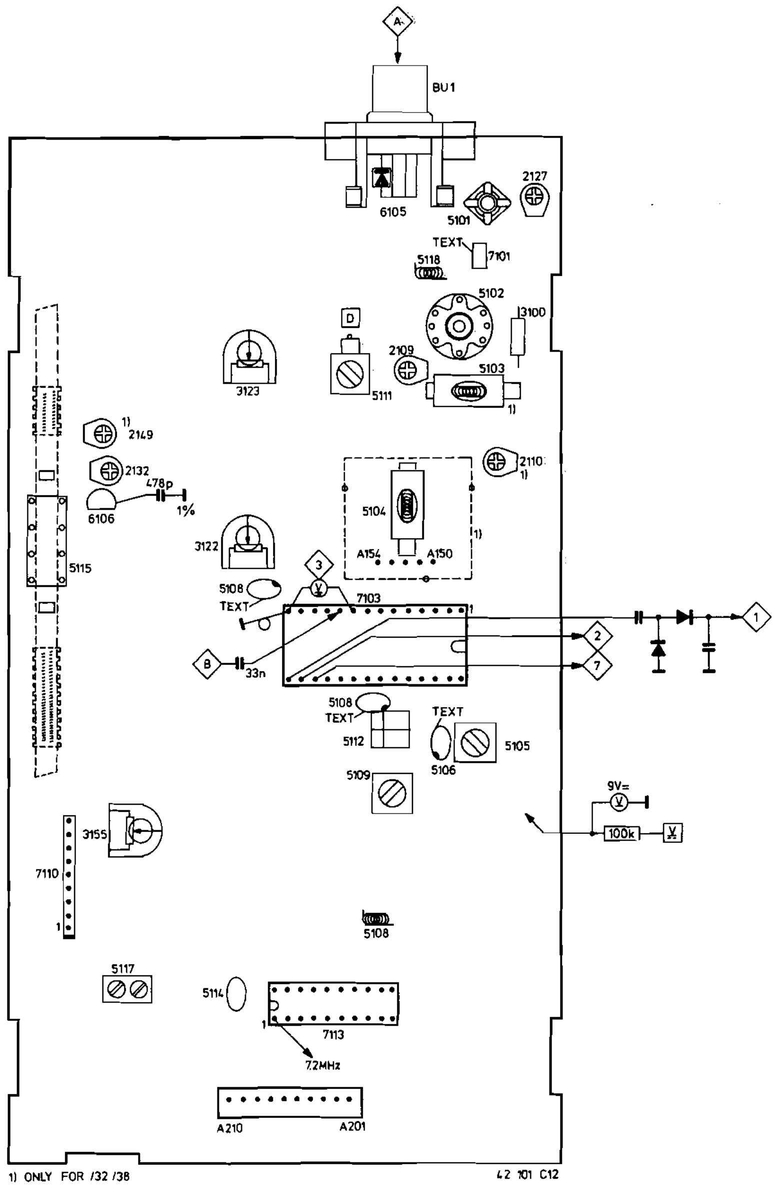

A
BU1
2127
6105
5101
TEXT
7101
5118
5102
3100
D
3123
2109
5111
5103
1)
2149
2132
478p
1%
6106
2110
5104
A154
A150
3122
5115
3
5108
TEXT
7103
1
2
7
8
33n
5108
TEXT
5112
TEXT
5106
5105
5109
9V=
V
100k
X
3155
7110
5108
5117
5114
7113
7,2MHz
A210
A201
1) ONLY FOR /32 /38
42 101 C12

Fig. 17

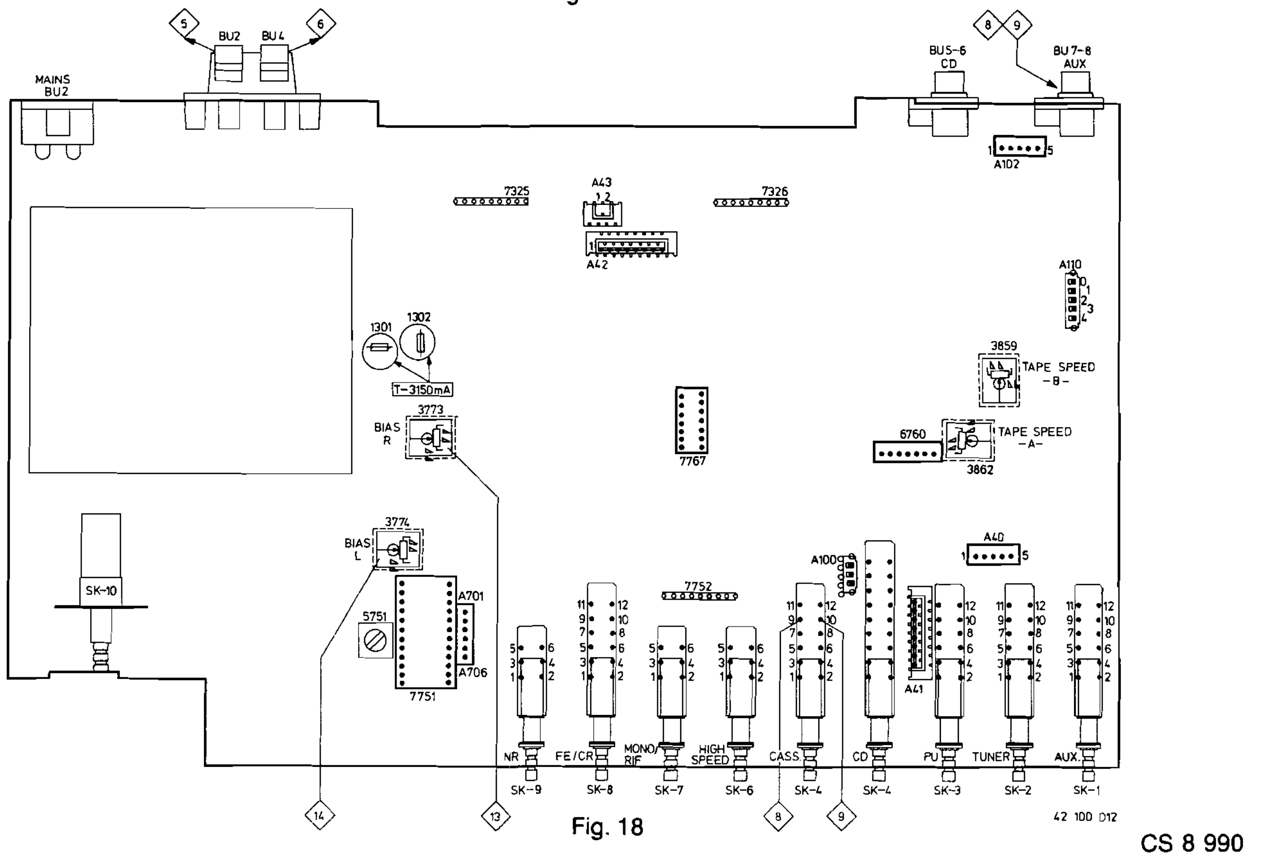

5
BU2
BU4
6
MAINS BU2
8
9
BUS-6 CD
BU7-8 AUX
A102
7325
A43
7326
A42
A110
1301
1302
T-3150mA
3773
BIAS R
7767
3859
TAPE SPEED -B-
6760
TAPE SPEED -A-
3862
3774
BIAS L
SK-10
5751
A701
A706
7751
7752
A100
A41
A40
NR
FE/CR
MONO RIF
HIGH SPEED
CASS.
CD
PU
TUNER
AUX
SK-9
SK-8
SK-7
SK-6
SK-4
SK-4
SK-3
SK-2
SK-1
14
13
8
9
42 100 D12

Fig. 18

PROGRAMMING

Storing numbers in the memory

Gerenal

You can:

- store the numbers in random order,
- only store each number once,
- store a maximum of 20 numbers,
- only store or alter a program when the disc is not moving.

1. After inserting the disc, press the 'OPEN/CLOSE' button ㉘ . The tray will close.

   Note:
   If you wish to program during playback, you must first stop the disc by pressing button 'STOP . CM' ㉕ .
2. Wait until the display shows the total of numbers on the disc.
3. Find the number you wish to store by briefly pressing the '◁◁ PREV'. ㉔ and/or the 'NEXT ▷▷' button ㉑ .
4. Press the 'PROGRAM' button ⑱ (whilst the '-' on the display is flashing).

- On the display a 'P' appears after the number.
- The number is now stored in the memory.

5. Repeat steps 3. and 4. for every number you wish to store in the memory, in the order required.

The 'ERR' indicator appears on the display if you

- Press the 'PROGRAM' button ⑱ too late, i.e. when the '–' is no longer flashing.
- Wish to store more than 20 numbers.

Erasing a stored number from the memory

6.1 Make sure that the disc has stopped, if necessary first press the 'STOP . CM' button ㉕ .
6.2 Locate the number you wish to erase using the '◁◁ PREV' button ㉔ and/or the 'NEXT ▷▷' button ㉑ .
6.3 Press the 'PROGRAM' button ⑱ (whilst the 'P' is flashing on the display).

- On the display a 'C' appears after the selected number.
- The number has now been erased from the memory.

6.4 Repeat steps 1. and 2. for every number you wish to erase.

Note:
If, when programming, you inadvertently store a number twice, you will have erased the number from the memory. For this reason you can only store each number once.

Press the 'PLAY.PAUSE' button ㉖

- Playback begins.
- The numbers are played back in the selected order.
- Fast search within the number is still possible.

8. The program you have selected can be repeated continuously by pressing the 'REPEAT' button ⑲ to set the player to repeat mode.

Checking the stored program

Press the 'PROGRAM' button ⑱ (the dash '–', the 'P' or 'C' on the display must not flash !).

- The display shows the numbers one after the other in the order in which they have been stored. You can carry out this check both before and during playback.

Erasing from the memory

The memory can be erased manually by pressing the 'STOP . CM' button ㉘ twice. Erasure takes place automatically when a source other than Compact Disc is selected and when the 'OPEN/CLOSE' button ㉘ is used.

Programming will not work if

- The disc is dirty or badly scratched. Clean the disc to see if this helps or program an unscratched or lightly scratched disc.
- The microprocessor has not processed the commands properly. Erase the program by pressing the 'STOP . CM' button ㉕ or the 'OPEN/CLOSE' button ㉘ and store the program again. Restart playback and check that the fault no longer occurs.
- All 20 memory places are full and you have failed to notice the 'ERR' indicator that shows this. Check this by pressing the 'PROGRAM' button ⑱ and counting the numbers displayed.

Switching over of the display in sets with built-in CD player

How does the µP know that the display has to change over from radio to CD use?
The µP looks at the input conditions of the I/O R8-1 (pin 20 tuner) and that of the I/O R7-1 (pin 40 stereo) to see whether the position CD is required, and changes the display if necessary.

TU/TU	Stereo	µP	Display function
0	0	Stereo	Tuner
0	1	Mono	Tuner
1	0	Internal CD	CD
1	1	AUX/PU/Cass/CD-TV	Tuner

GB *Notes:*

*a. Prior to any measurement or adjustment with the tape running, heads and tape guides should be degaussed and cleaned.

*b. The max. permissible speed deviation ±1.5%. Moreover, the wow-and-flutter can be read. This value should not exceed 0.3%.

*c. If the accuracy requirements are less stringent a high quality chromium cassette may be used as an alternative.

*d. When one channel is adjusted this may slightly affect the adjustment of the other channel.
If the adjustment is correct the frequency response curve will be similar to curve b in Fig. 14, distortion ≤3%.

F *Remarques:*

*a. Le chaque mesure ou réglage à la chaîne, les têtes et guide-bande doivent etre démagnetisées et nettoyées.

*b. Ecart maximum admissible ±1.5%.
On pourra aussi lire le niveau de pleurage que ne doit pas dépasser 0,3%.

*c. Si les exigences point vue précision ne sont pas tellement élevées, une cassette au chrome de bonne qualité pourra aussi convenir.

*d. Lors du réglage d'un des canaux on pourrait constater qu'il y a incidence sur l'autre.
Si le réglage est comme il faut, la courbe de fréquence aura la forme de celle de la Fig. 14 courbe b, distorsion ≤3%.

I *Note:*

*a. Prima di effetuare della misure o regolazioni con la cassetta inserita, le testine e le guide nastro devono essere smagnetizzate e pulite.

*b. Massima deviazione tollerata ±1.5%.
Può essere letto anche il wow. Questo può essere como massimo 0,3%.

*c. Si il controllo non deve essere molto accurato, si può utilizarre une cassetta al cromo di alta qualita.

*d. Quando viene regolato un canale, questo può influire sulla regolazione dell'altro.
Se la regolazione è correcta la curva della riposta in frequenza sarà simile alla curva b della Fig. 14. Distorsione aumenterà ≤3%.

NL *Opmerkingen:*

*a. Voor alle metingen en instellingen met lopende band dienen de koppen en bandgeleiders gedemagnetiseerd en gereinigd te worden.

*b. Max. toelaatbare snelheidsafwijking ±1.5%.
Tevens kan bij deze meting de jengelwaarde worden afgelezen. Deze mag max. 0.3% bedragen.

*c. Bij minder hoge nauwkeurigheid kan ook een chromiumcassette van goede kwaliteit gebruikt worden.

*d. Bij het instellen van het ene kanaal kan het andere iets worden beïnvloed.
Bij een goede instelling zal de frequentiekarakteristiek als in Fig. 14 curve b. verlopen, vervorming ≤3%.

D *Anmerkungen:*

*a. Vor jeder Messung oder Einstellung mit laufendem Band empfielt es sich, die Köpfe und Bandführungen zu entmagnetisieren und zu reinigen.

*b. Maximal zulässige Geschwindigkeitsabweichung ±1.5%.
Auch kann der Jaulwert abgelesen werden, der höchstens 0.3% betragen darf.

*c. Bei weniger höher Genauigkeit lässt sich auch eine Chromium-Cassette guter Qualität verwenden.

*d. Beim Einstellen des einen Kanals kann der andere etwas beeinflusst werden.
Bei einer entsprechenden Einstellung verläuft der Frequenzgang wie in Abb. 14 Kurve b, Verzerrung ≤3%.

ELECTRICAL MEASUREMENTS AND ADJUSTMENTS

General conditions

The following general conditions apply to the electrical measurements and adjustments, unless explicitly stated otherwise.

- Mains voltage 220 V ±5%, 50 Hz
- Ambient temperature 20 to 25°C
- SK15 position tape.
- Tape selection: chromium SK-8
- NR-OFF, SK-9

- The voltages have been measured relative to earth.
- The measurements and adjustments are related to the lefthand channel.
  The corresponding test points and adjusting elements for the right-hand channel are given in brackets.

Required test equipment and test cassettes

- LF generator
- AC millivoltmeter (mV-meter)
- Wow-and-flutter-meter
- Universal test cassette SBC419Cr – 4822 397 30069
- Frequency counter

RECORDER A + B

Recorder	Adjustment/ control	Cassette	Recorder in position	Apply signal to	Measure on	Read on	Adjust with	Adjust to/ Measure
A + B Method 1	Normal speed	3150 Hz part of SBC419	PLAY	–	◇9 (◇8)	Wow and flutter meter	3859 3862	b*
Method 2					◇5 (◇6)	Frequency counter	3859 3862	3150 Hz –0,5%
A	Control high speed	3150 Hz part of SBC419	PLAY-A	–	◇5 (◇6)	Frequency counter	–	6300 Hz ± 3%
B	Control hig speed	3150 Hz part of SBC419	PLAY-B	–	◇5 (◇6)	Frequency counter	–	6300 Hz ± 3%
A + B	Azimuth R/P head	10 kHz part of SBC419	PLAY	–	◇5 (◇6)	AC mV meter or oscilloscope	Left screw on R/P head	Max. output L + R
A + B	Playback sensitivity control	315 Hz-0 dB part of SBC419CR	PLAY	–	◇9 (◇8)	AC mV meter	–	7 mV~ ± 2 dB
A + B	Playback frequency response	SBC419 40 Hz; 250 Hz 6,3 kHz-10 kHz	PLAY	–	◇9 (◇8)	AC mV meter		See graph Fig. 15 frequency response
B	BIAS Target value	Chromium cassette	REC + PLAY	–	◇13 (◇14)	AC mV meter	3773 (3774)	16 V~ ± 20%
B	BIAS	SBC419 side 2 *c	REC + PLAY	315 Hz to AUX-input BU-7 (BU-8)	◇9 (◇8)	AC mV meter	LF-generator	⩾ 3,5 mV
			SK-1 AUX	63 kHz-125 Hz 1 kHz-6,3 kHz 10 kHz	Record a number of frequencies with the same input voltage and play them back			
			PLAY	–	◇9 (◇8)	AC mV meter	–	See graph Fig. 16 if necessary repeat bias adjustment *d

RECORD PLAYER

	Adjustment		Set in position		Read on	Adjust with		Adjust to/
	Speed		PU SK-3 33¹/₃ rpm		Stroboscope	Trimpotmeter inside motor		33¹/₃ rpm

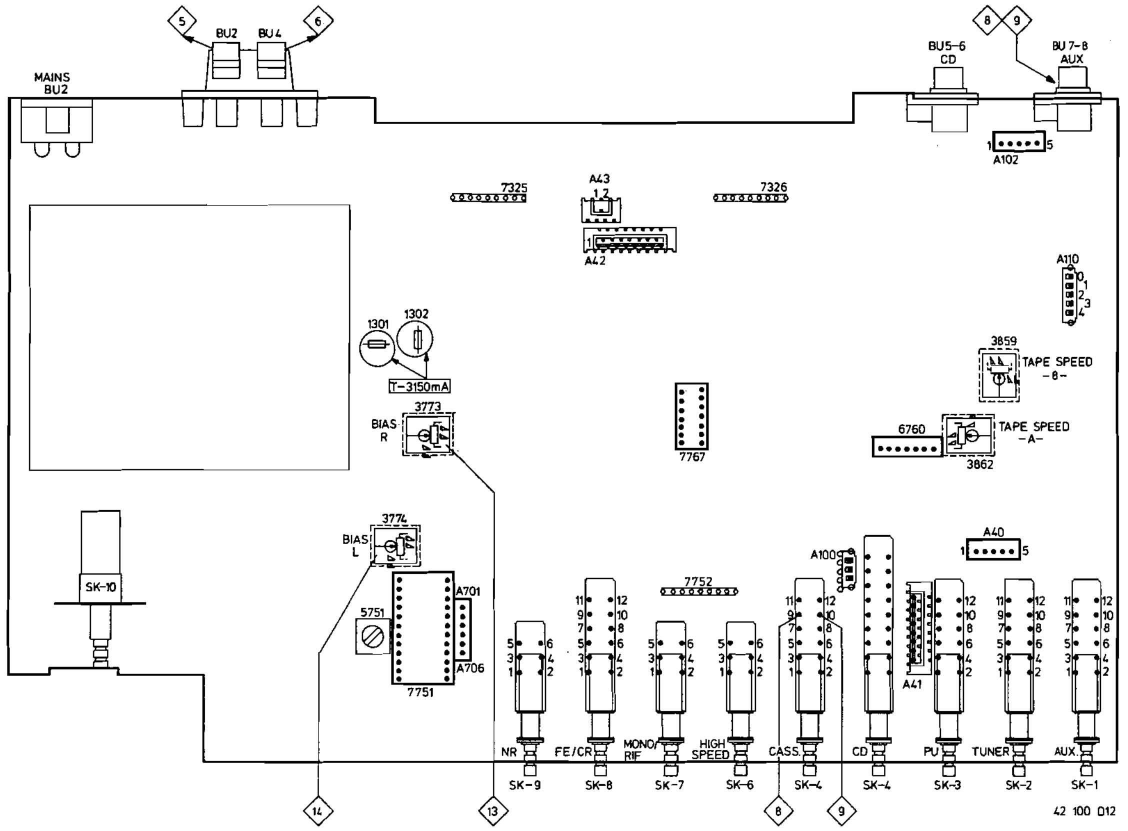

5
6
BU2
BU4
MAINS BU2
8
9
BU5-6 CD
BU 7-8 AUX
A102
7325
A43
7326
A42
A110
1301
1302
T-3150mA
3773
BIAS R
3859
TAPE SPEED -B-
7767
6760
TAPE SPEED -A-
3862
3774
BIAS L
SK-10
5751
A701
A706
7751
7752
A100
A40
A41
NR
FE/CR
MONO/ RIF
HIGH SPEED
CASS.
CD
PU
TUNER
AUX
SK-9
SK-8
SK-7
SK-6
SK-4
SK-4
SK-3
SK-2
SK-1
14
13
8
9
42 100 012

Fig. 19

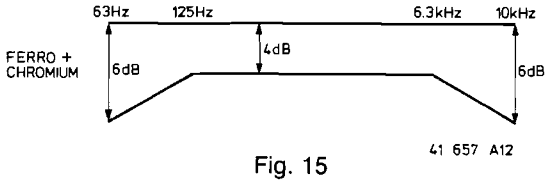


Fig. 15

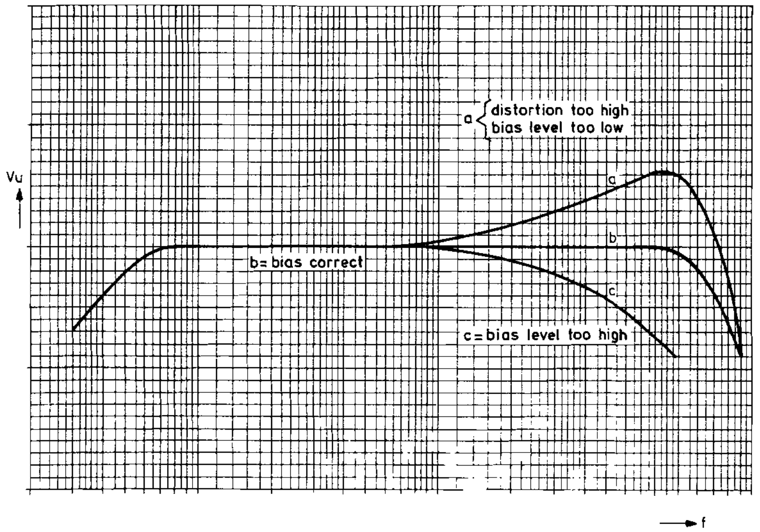
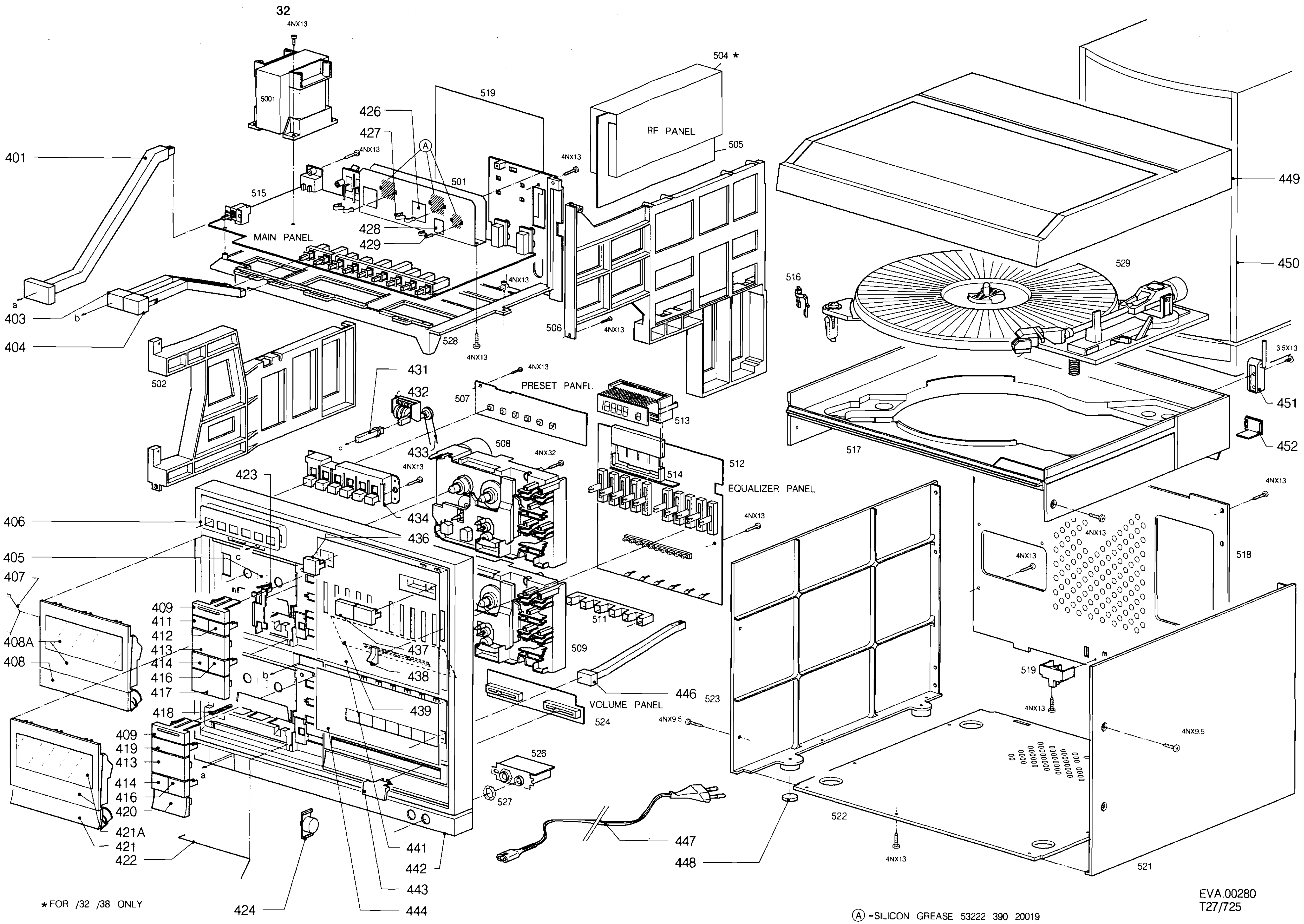


Fig. 16

29 476 A12

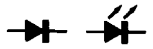

32
4NX13
5001
504 ★
RF PANEL
505
519
426
427
Ⓐ
501
401
515
4NX13
MAIN PANEL
428
429
449
450
529
516
a
403
b
404
528
4NX13
506
4NX13
502
431
432
c
433
4NX13
PRESET PANEL
507
513
508
4NX32
512
514
EQUALIZER PANEL
3.5X13
451
452
517
423
4NX13
434
436
406
405
407
408A
408
409
411
412
413
414
416
417
418
409
419
413
414
416
420
421A
421
422
424
437
438
439
441
442
443
444
511
509
446
VOLUME PANEL
524
4NX9.5
526
527
447
448
523
518
519
4NX13
4NX13
4NX9.5
522
521
4NX13
c
b
a
m

★FOR /32 /38 ONLY

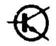
Ⓐ =SILICON GREASE 53222 390 20019

EVA.00280
T27/725

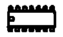
401	4822 410 25721	412	4822 410 25725	421A	4822 454 11979	433	4822 358 20268	446	4822 411 61335
403	4822 410 25867	413	4822 410 25726	422	4822 492 41194	434	4822 410 25714	447	4822 321 10244
404	4822 410 25866	413	4822 410 25865	423	4822 403 30666	436	4822 410 25716	448	4822 462 40683
405	4822 460 20629	414	4822 410 25728	424	4822 522 31741	437	4822 410 25717	449	4822 462 41137
406	4822 459 50458	416	4822 410 25727	426	4822 325 20133	438	4822 411 61334	450	4822 445 10127
407	4822 492 63122	417	4822 410 25722	427	5322 255 40397	439	4822 450 61016	451	4822 417 10631
408	4822 443 62193	418	4822 492 32727	428	4822 255 40133	441	4822 459 50459	452	4822 460 10589
408A	4822 454 11981	419	4822 410 25729	429	4822 255 40128	442	4822 426 51214		
409	4822 410 25723	420	4822 410 25731	431	4822 410 25715	443	4822 411 61336		
411	4822 410 25724	421	4822 443 62192	432	4822 349 50277	444	4822 459 50461		



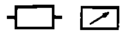
Backlight green	4822 130 80306
BA220	4822 130 34221
BA317	4822 130 30847
BB204B	4822 130 34449
Bridge rectifier	4822 130 80305
BZX79/C5V1	4822 130 34233
HZ11A3 (10V0) 2.5%	4822 130 32566
HZ12B3 (13V0)	4822 130 32699
HZ16-2 (16V0) 2.5%	4822 130 31318
HZ6C2 (6V2)	4822 130 32698
LED green GL8EG10	4822 130 80308
LED green TLG123A	5322 130 31943
LED red GL8HD10	4822 130 80307
LED red TLR123	5322 130 34957
LED yellow TLY123	5322 130 34958
OF642 Varicap	4822 130 32159
1N4001 6P	4822 130 80291
1N4148	4822 130 30621



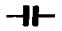
BC337-40	4822 130 41344
BC338-40	5322 130 44779
BC818-16	4822 130 60071
BC846B (1B-marked)	5322 130 60159
BC848B	5322 130 41982
BC848C	5322 130 42136
BC8488 (1K marked)	5322 130 41982
BC849C (2C marked)	4822 130 42614
BC856	4822 130 60136
BC858B	5322 130 41983
BD135	4822 130 40823
BD675	5322 130 44786
BF199	4822 130 44154
BF245A FET	5322 130 44499
BF494	4822 130 44195
BF494B	4822 130 41376
2SK193LF FET	4822 130 41813



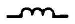
CXA1030P AM/FM IC	4822 209 71343
HEF4016BP	5322 209 14119
LM7000 Synthesizer	4822 209 71331
NJM4558DD	4822 209 81054
TA7325P Pre-amp dual	4822 209 81038
TA7343AP	4822 209 81245
TDA1520B/N1 20W	4822 209 71743
TDA1600 Oscil. IC	4822 209 70239
TMP47C221AF Mic cont	4822 209 71741
µPC1313HA Pre-amp	4822 209 70288
U2066B LED driver	4822 209 70252



3122	Trim. LIN. 470R 20%	4822 100 10038
3123	Trim. LIN. 10k 20%	4822 100 10035
3155	Trim. LIN. 4k7 20%	4822 100 10036
3238	NFR25 22E 5%	4822 111 30517
3355	Slipot. equal. 100k	4822 105 10931
3410	Slipot volume 2x100k	4822 105 10917
3415	Slipot bal. 2x10k	4822 105 10932
3463	NFR25 1R 5%	4822 116 53074
3465	Metal film PP37 220R	4822 116 51146
3472	NFR25 47R 5%	4822 111 30526
3487	NFR25 47R 5%	4822 111 30526
3751	Chip 2k4 2%	4822 116 90271
3772	NFR25 22R 5%	4822 111 30517
3773	Trim. LIN 100k 20%	4822 100 90056
3859	Trim. LIN 1k 20%	4822 100 10874



2109	Mini trim. 10 pF N450	4822 125 60101
2110	Mini trim. 10 pF N450	4822 125 60101
2113/30/35	12 pF PM5 N750	4822 122 33095
2113/32	Chip 10 pF 5% N750	4822 122 32508
2127	Mini trim. 10 pF N450	4822 125 60101
2132	Mini trim. 30 pF N750	4822 125 60102
2134	PP Cap 560P 1% 250 V	4822 121 51158
2135	Chip 12P PM5 N750	4822 122 33095
2148	PP Cap 110P 2% 250 V	4822 121 51114
2149	Mini trim. 30 pF N750	4822 125 60102
2152	LL. elcap. 1.5 µF 50 V	4822 121 51095
2172	PP Cap 1 nF 2% 250 V	4822 121 51131
2175	PP Cap 15 nF 2% 63 V	4822 121 51049
2176	PP Cap 15 nF 2% 63 V	4822 121 51049
2191	PP Cap 470 pF 2% 250 V	4822 121 51027
2302	Supercap. 100 mF	4822 124 90348
2305	Tubular 22 nF 16 V 30%	4822 122 10166
2308	LL. elcap. 25 V 1 µF 10%	4822 124 22293
2309	Tubular 22 nF 16 V 30%	4822 122 10166
2355	Tubular 22 nF 16 V 30%	4822 122 10166
2389	Tubular 180P 50 V 10%	4822 122 31474
2390	Tubular 180P 50 V 10%	4822 122 31474
2397	Tubular 180P 50 V 10%	4822 122 31474
2398	Tubular 180P 50 V 10%	4822 122 31474
2434	4700 µF 20% 25 V	4822 124 41391
2435	4700 µF 20% 25 V	4822 124 41391
2436	4700 µF 20% 25 V	4822 124 41391
2459	Tubular 180P 50 V 10%	4822 122 10223
2460	Tubular 180P 50 V 10%	4822 122 10223
2463	Tubular 180P 50 V 10%	4822 122 10223
2464	Tubular 180P 50 V 10%	4822 122 10223
2767	Tubular 180P 50 V 10%	4822 122 10162
2769	PP Cap. 2N2 250 V 2%	4822 121 42783
2791	Tubular 1 nF 10% 50 V	4822 122 10162



5001	Mains transformer	4822 146 21251
5002	Coil 100 MU	4822 157 53123
5003	Coil 100 MU	4822 157 53123
5101	FM-RF coil	4822 157 52733
5102/30/35	RF coil	4822 157 53121
5102/32	FM-RF coil	4822 156 21417
5103	RF coil	4822 156 21339
5104/30/35	RF coil	4822 156 21339
5104/32	Osc. coil E526HNA	4822 157 53143
5105	FM-IF coil	4822 157 52734
5106	Ceramic filter Package	4822 242 71744
5108	Absorb. coil	4822 156 10641
5109	AM-IF coil	4822 158 60511
5111	AM-Osc coil	4822 157 51844
5112	Ceramic resonator	4822 242 70484
5114	Cristal 7.2 MHz Quart	4822 303 50034
5115	Ferroceptor	4822 158 60566
5117	Low pass filter	4822 157 53142
5118	Absorb. coil	4822 156 10641
5301	Cer. res. 4 MHz	4822 242 70831
5302	Coil 100 MU	4822 157 53123
5351	Coil 100 MU	4822 157 53123
5751	Osc. coil 100 kHz	4822 156 20946

Miscellaneous

BU1	Connector aerial	4822 267 20312
BU2	Mains inlet	4822 265 20291
BU3-4	Push terminal LS	4822 290 60673
BU5-6	Cinch plug plate	4822 267 30631
BU7-8	Cinch plug plate	4822 267 30631
BU10	Microph. socket	4822 267 30826
BU11	Headph. socket	4822 267 30825
SKP	Tact switch	4822 276 11896
SK1-7	Switch ãssy 7 fold	4822 276 70103
SK8-9	Switch assy 2 fold	4822 276 20457
SK10	Power switch	4822 276 11567
SK13	Mute switch	4822 277 10777
SK14	REC switch	4822 276 11097
1301	Fuse 3.15A (TR5)	4822 253 10048
1302	Fuse 3.15A (TR5)	4822 253 10048
1305	Fuse T630mA (TR)	4822 253 20089
1501	UM1X22 LLT TH. Fuse	4822 252 20146
LCD		4822 130 90426

▲	Carbon film 0.2 W	70°C	5%
□	Carbon film 0.33 W	70°C	5%
■	Metal film 0.33 W	70°C	5%
●	Carbon film 0.5 W	70°C	5%
▨	Carbon film 0.67 W	70°C	5%
◤	Carbon film 1.15 W	70°C	5%

Ⓒ Chip component

ΔΔ*	Ceramic plate Tuning ⩽ 120 pF NP.0 Others	 2% —20/+80%
●●*	Polyester flat foil	10%
□*	Metalized polyester flat film	10%
○□*	Polyester flat foil small size (Mylar)	10%
○Δ*	Polysterene film/foil	1%
■▲*	Tubular ceramic	
○*	Miniature single	
○○*	Subminiature tantalum	± 20%

*a = 2,5 V
b = 4 V
c = 6,3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1,6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

27 037A/C

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1 pF	5%	4822 122 32479
1,2 pF	5%	4822 122 33013
1,5 pF	5%	4822 122 31792
1,8 pF	5%	4822 122 32087
2,2 pF	5%	4822 122 32425
3,3 pF	5%	4822 122 32079
3,9 pF	5%	4822 122 32081
4,7 pF	5%	4822 122 32082
5,6 pF	5%	4822 122 32506
6,8 pF	5%	4822 122 32507
8,2 pF	5%	4822 122 32083
10 pF	5%	4822 122 31971
12 pF	5%	4822 122 32139
15 pF	5%	4822 122 32504
18 pF	5%	4822 122 31769
22 pF	10%	4822 122 31837
27 pF	5%	4822 122 31966
33 pF	5%	4822 122 31756
39 pF	5%	4822 122 31972
47 pF	5%	4822 122 31772
56 pF	5%	4822 122 31774
68 pF	5%	4822 122 31961
82 pF	10%	4822 122 31839
100 pF	5%	4822 122 31765
120 pF	5%	4822 122 31766
150 pF	5%	4822 122 31767
180 pF	2%	4822 122 31794
220 pF	5%	4822 122 31965
270 pF	5%	4822 122 32142
330 pF	10%	4822 122 31642
390 pF	5%	4822 122 31771
470 pF	5%	4822 122 31727
560 pF	5%	4822 122 31773
680 pF	5%	4822 122 31775
820 pF	5%	4822 122 31974
1 nF	10%	5322 122 31647
1,2 nF	5%	4822 122 31807
1,5 nF	10%	4822 122 31781
1,8 nF	10%	4822 122 32153
2,2 nF	10%	4822 122 31644
2,7 nF	10%	4822 122 31783
3,3 nF	10%	4822 122 31969
3,9 nF	10%	4822 122 32566
4,7 nF	10%	4822 122 31784
5,6 nF	10%	4822 122 31916
6,8 nF	10%	4822 122 31976
10 nF	10%	4822 122 31728
12 nF	10%	5322 122 31648
15 nF	10%	4822 122 31782
18 nF	10%	4822 122 31759
22 nF	10%	4822 122 31797
27 nF	10%	4822 122 32541
33 nF	10%	4822 122 31981
47 nF	10%	4822 122 32542
56 nF	10%	4822 122 32183
100 nF	10%	4822 122 31947
180 nF	10%	4822 122 32915
220 nF	20%	4822 122 32715

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0 E	jumper	4822 111 90163
1 E	5%	4822 111 90184
1,1 E	5%	4822 111 90377
1,2 E	5%	4822 111 90378
1,3 E	5%	4822 111 90379
1,5 E	5%	4822 111 90381
1,6 E	5%	4822 111 90382
1,8 E	5%	4822 111 90383
2 E	5%	4822 111 90384
2,2 E	5%	5322 111 90104
2,4 E	5%	4822 111 90385
2,7 E	5%	4822 111 90386
3 E	5%	4822 111 90387
3,3 E	5%	4822 111 90388
3,6 E	5%	4822 111 90389
3,9 E	5%	4822 111 90391
4,3 E	5%	4822 111 90392

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4,7 E	5%	5322 111 90376
5,1 E	5%	4822 111 90393
5,6 E	5%	4822 111 90394
6,2 E	5%	4822 111 90395
6,8 E	5%	4822 111 90254
7,5 E	5%	4822 111 90396
8,2 E	5%	4822 111 90397
9,1 E	5%	4822 111 90398
10 E	2%	5322 111 90095
11 E	2%	4822 111 90338
12 E	2%	4822 111 90341
13 E	2%	4822 111 90343
15 E	2%	4822 111 90344
16 E	2%	4822 111 90347
18 E	2%	5322 111 90139
20 E	2%	4822 111 90352
22 E	2%	4822 111 90186
24 E	2%	4822 111 90355
27 E	2%	5322 111 90105
30 E	2%	4822 111 90356
33 E	2%	4822 111 90357
36 E	2%	4822 111 90359
39 E	2%	4822 111 90361
43 E	2%	5322 116 90125
47 E	2%	4822 111 90217
51 E	2%	4822 111 90365
56 E	2%	4822 111 90239
62 E	2%	4822 111 90367
68 E	2%	4822 111 90203
75 E	2%	4822 111 90371
82 E	2%	4822 111 90124
91 E	2%	4822 111 90375
100 E	2%	5322 111 90091
110 E	2%	4822 111 90335
120 E	2%	4822 111 90339
130 E	2%	4822 111 90164
150 E	2%	5322 111 90098
160 E	2%	4822 111 90345
180 E	2%	5322 111 90242
200 E	2%	4822 111 90348
220 E	2%	4822 111 90178
240 E	2%	4822 111 90353
270 E	2%	4822 111 90154
300 E	2%	4822 111 90156
330 E	2%	5322 111 90106
360 E	1%	4822 111 90288
360 E	2%	4822 111 90358
390 E	2%	5322 111 90138
430 E	2%	4822 111 90362
470 E	2%	5322 111 90109
510 E	2%	4822 111 90245
560 E	2%	5322 111 90113
620 E	2%	4822 111 90366
680 E	2%	4822 111 90162
750 E	2%	5322 111 90306
820 E	2%	4822 111 90171
910 E	2%	4822 111 90372
1 k	2%	5322 111 90092
1,1 k	2%	4822 111 90336
1,2 k	2%	5322 111 90096
1,3 k	2%	4822 111 90244
1,5 k	2%	4822 111 90151
1,6 k	2%	5322 111 90265
1,8 k	2%	5322 111 90101
2 k	2%	4822 111 90165
2,2 k	2%	4822 111 90248
2,4 k	2%	4822 111 90289
2,7 k	2%	4822 111 90569
3 k	2%	4822 111 90198
3,3 k	2%	4822 111 90157
3,6 k	2%	5322 111 90107
3,9 k	2%	4822 111 90571
4,3 k	2%	4822 111 90167
4,7 k	2%	5322 111 90111
5,1 k	2%	5322 111 90268
5,6 k	2%	4822 111 90572
6,2 k	2%	4822 111 90545

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6,8 k	2%	4822 111 90544
7,5 k	2%	4822 111 90276
8,2 k	2%	5322 111 90118
9,1 k	2%	4822 111 90373
10 k	2%	4822 111 90249
11 k	2%	4822 111 90337
12 k	2%	4822 111 90253
13 k	2%	4822 111 90509
15 k	2%	4822 111 90196
16 k	2%	4822 111 90346
18 k	2%	4822 111 90238
20 k	2%	4822 111 90349
22 k	2%	4822 111 90251
24 k	2%	4822 111 90512
27 k	2%	4822 111 90542
30 k	2%	4822 111 90216
33 k	2%	5322 111 90267
36 k	2%	4822 111 90514
39 k	2%	5322 111 90108
43 k	2%	4822 111 90363
47 k	2%	4822 111 90543
51 k	2%	5322 111 90274
56 k	2%	4822 111 90573
62 k	2%	5322 111 90275
68 k	2%	4822 111 90202
75 k	2%	4822 111 90574
82 k	2%	4822 111 90575
91 k	2%	5322 111 90277
100 k	2%	4822 111 90214
110 k	2%	5322 111 90269
120 k	2%	4822 111 90568
130 k	2%	4822 111 90511
150 k	2%	5322 111 90099
160 k	2%	5322 111 90264
180 k	2%	4822 111 90565
200 k	2%	4822 111 90351
220 k	2%	4822 111 90197
240 k	2%	4822 111 90215
270 k	2%	4822 111 90302
300 k	2%	5322 111 90266
330 k	2%	4822 111 90513
360 k	2%	4822 111 90515
390 k	2%	4822 111 90182
430 k	2%	4822 111 90168
470 k	2%	4822 111 90161
510 k	2%	4822 111 90364
560 k	2%	4822 111 90169
620 k	2%	4822 111 90213
680 k	2%	4822 111 90368
750 k	2%	4822 111 90369
820 k	2%	4822 111 90205
910 k	2%	4822 111 90374
1 M	2%	4822 111 90252
1,1 M	5%	4822 111 90408
1,2 M	5%	4822 111 90409
1,3 M	5%	4822 111 90411
1,5 M	5%	4822 111 90412
1,6 M	5%	4822 111 90413
1,8 M	5%	4822 111 90414
2 M	5%	4822 111 90415
2,2 M	5%	4822 111 90185
2,4 M	5%	4822 111 90416
2,7 M	5%	4822 111 90417
3 M	5%	4822 111 90418
3,3 M	5%	4822 111 90191
3,6 M	5%	4822 111 90419
3,9 M	5%	4822 111 90421
4,3 M	5%	4822 111 90422
4,7 M	5%	4822 111 90423
5,1 M	5%	4822 111 90424
5,6 M	5%	4822 111 90425
6,2 M	5%	4822 111 90426
6,8 M	5%	4822 111 90235
7,5 M	5%	4822 111 90427
8,2 M	5%	4822 111 90237
9,1 M	5%	4822 111 90428
10M	5%	5322 111 91141